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# Table of CONTENTS



## FEATURES

**14 Basement finishing tips**
Basements present unique problems—and our remodeling pros have the solutions.

**29 Replace a garbage disposal**
Don't pay someone else to do it! Our tips make the job fast, easy and leak-free.

**38 Reupholster a chair**
Renew a worn-out seat in an hour. Anyone can do it!

**49 What every homeowner must know**
Be a smarter homeowner: Save money, solve problems and improve your home.

**NOTE:** Skipped pages represent advertisements that are not included in this digital edition.

# Table of CONTENTS

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## DEPARTMENTS


**4 Stuff We Love**
Whole-house surge protectors, faster-loading trimmer string, and a firefighter in a can.

**10 Handy Hints®**
Nonslip ladder rungs, stretchy clamps and a dust catcher for wall repairs.

**56 Pro Tips**
Job too big for a shovel and a wheelbarrow? Here's our guide to renting and using skid steers.

**65 Top Ten Tips**
Our best tips for watering quickly and efficiently to maintain a healthy lawn.

**72 DIY Quiz**
Think you know everything there is to know about DIY? Find out with this quick quiz!

**76 Car + Garage**
In the market for truck or SUV tires? Read this before you pick your rubber for the road.

**87 Home Care + Repair**
Replacing a damaged sprinkler head; getting faster backups with your desktop computer.

**92 Great Goofs®**
Plumbing, electrical and carpentry blunders you'll be glad you didn't make.

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# STUFF we love

BY TRAVIS LARSON editors@thefamilyhandyman.com

## SAVE YOUR ELECTRONICS

My wife and I bought a new washer and dryer a few years ago. A year later, a big thunderstorm rolled through the area and left our dryer dead. We called the repair technician. His diagnosis: The circuit board was fried by a voltage spike, most likely from a nearby lightning strike. The repair would have cost almost $500. The dryer wasn't worth fixing. Ouch.

After doing some research, I learned that voltage spikes are relatively common. And every time there's a spike, circuit boards take a hit. Eventually they fail. The only way to prevent that kind of damage is to install a whole-house surge protector in the main electrical panel. It acts like a traffic cop, diverting electrical surges to ground.

So I bought a high-quality surge protector, one with two lights. The green light means it's doing its job, and the red light means it has reached the end of its useful life and must be replaced.

When I think about the thousands of dollars' worth of electronics in the average home, I believe it's crazy not to install a whole-house surge protector. After all, much of what plugs into the wall these days is at risk for costly damage from power surges.

If you have intermediate wiring skills, you can install a whole-house surge protector yourself. You'll need two blank breaker spaces in the main panel. But if all the circuit spaces are full or you're wary about working inside the panel, hire an electrician (the average fee is about $200). Believe me, a whole-house surge protector is well worth it. Find them online or at home centers. Expect to pay about $100 plus $10 to $20 for a double-pole circuit breaker to connect it to your panel.

**Travis Larson, Senior Editor**

ART DIRECTION **VERN JOHNSON** • PHOTOGRAPHY **TOM FENENGA UNLESS NOTED**

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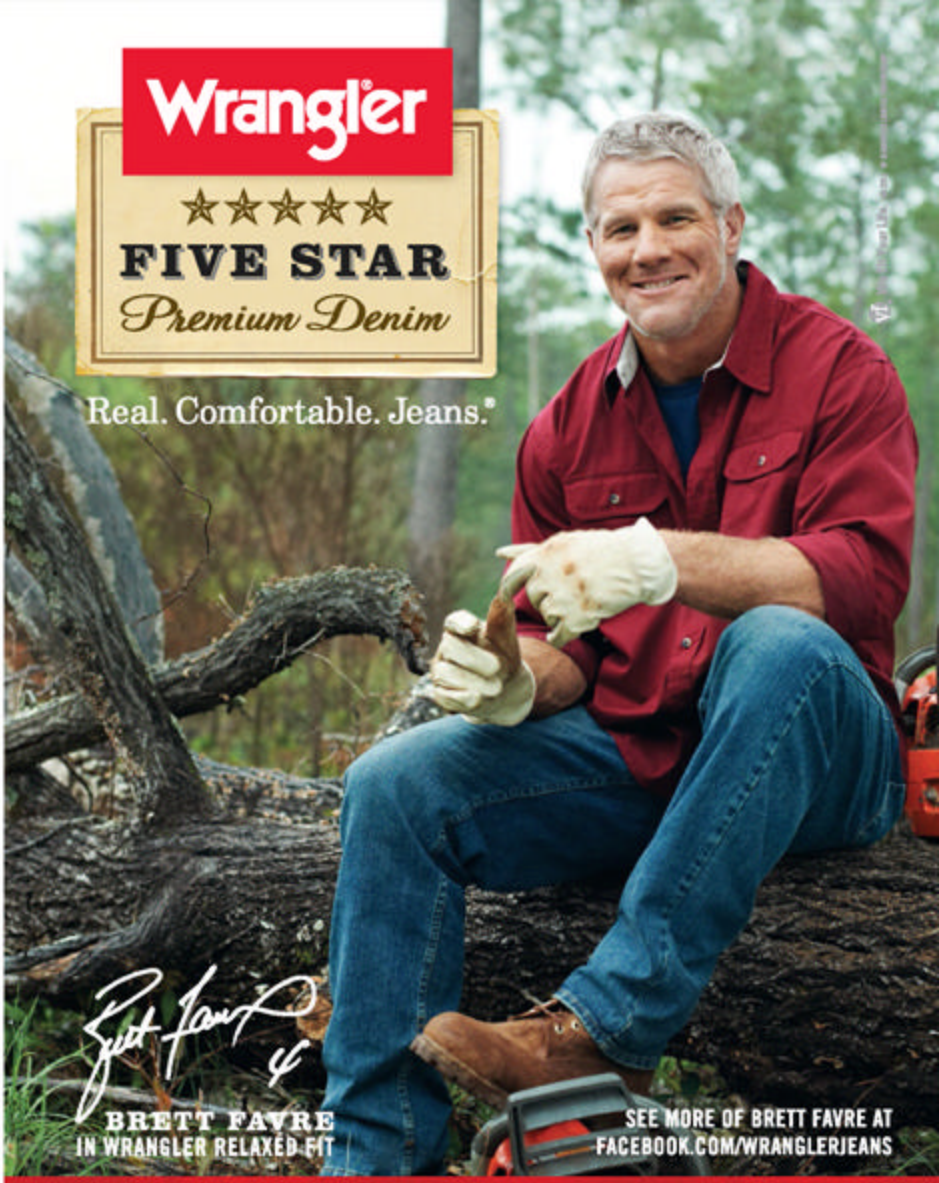


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## Super-easy string replacement

I loved my string trimmer—except when it came time to replace the string. Then I hated it! Replacing string was practically a two-person job. So I was pretty excited when I ran across OREGON's new string trimmer head. The Gator SpeedLoad Cutting System attaches to most popular trimmers and makes string replacement super easy.

The heavy-duty string comes coiled on a disk. All you do is plop the disk into position, feed out the two string ends (and not through tiny little holes, like on my old one), and snap on the cap. My property is several acres, so if I'm close to running out of string, I slip a replacement spool in my pocket before I head out. That way I don't have to walk all the way back to my shop to reload.

You can find a local dealer or an online source at oregonproducts.com. The heads cost $25 to $47 depending on the model, and the disks cost about $15 each.

**Mark Petersen, Contributing Editor**

## Unplugged housekeeping assistant

I hate cleaning, and anything that gets me past it is welcome at my house. Black & Decker's 36V MAX Lithium Stick Vac (No. BDH3600SV) is a cordless upright that's fun to use and does a great job on carpeted stairs and in tight spaces. What's even cooler is that it doubles as a handheld vacuum. You just pull the motor away from the handle to create a powerful handheld cleaning buddy. I use it around toilets and tubs—my two least favorite spots. The cleaning wand on the handheld part extends another 4-1/2 in., making it easy to get into closet corners.

The fully charged 36-volt lithium battery lasts 17 minutes—an indicator light lets you know the remaining battery capacity. A lightweight upright/handheld won't replace the full-size plug-in vacuum that I use for heavy cleaning (accompanied by heavy complaining), but it makes a midweek touch-up easy. Plus, I love not tripping over the cord. Expect to pay about $300. The 36V MAX Lithium Stick Vac is available at home centers, many stores and online.

**Marcia Roepke, Art Director**

## A wire stripper and so much more

This smart little tool does a lot—it works as a wire stripper, sheathing cutter, wire bender, measuring gauge and a wire nut wrench. But what it really excels at is stripping sheathing from nonmetallic cable (Romex). The little tooth inside slices through the sheathing as you slide the cable through. The tooth won't damage the individual wires, and because it's inside the tool, it won't slice your fingers like a utility blade could. Buy an Ideal Lil' Ripper Stripper online or at home centers for about $6.

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## ARC BLADE

Lenox recently added a curved recip blade to its already impressive lineup. The curve helps change the angle of attack on every stroke, which speeds up cutting. It's similar to the orbital action on many reciprocating saws. These blades are not intended for dainty scrollwork—they're most useful when you have a whole bunch of aggressive cuts to make. Lenox Gold Power Arc Curved Blades are available at Lowe's, tool suppliers and online. A five-pack costs about $22.

WILLIAMS FICHM

## Firefighter in a can

I recently read about a kitchen fire that was extinguished by a couple of inconspicuous fire-suppression cans attached to the inside of the range hood. The fire chief said the cans prevented the stovetop fire from reaching the cooking oil stored in the cabinet directly above: "Things would have gotten ugly fast if that had happened."

Fire suppression cans are filled with bicarbonate of soda and are opened up by a heat-sensitive actuator. It takes two cans to protect one stovetop. They attach to the range hood with magnets. Since most home fires start in the kitchen, $50 for the two cans seems like cheap insurance. StoveTop FireStop is one brand that can be found at some home centers and online. Even if you install fire-suppression cans in your range hood, it's still a bad idea to store cooking oil above the stovetop.

**Mark Petersen, Contributing Editor**

## Foam sprayer saves your hands and a few bucks

If you've ever applied foaming soap scum remover from a trigger pump bottle, you know it takes about 4,000 pumps to coat your entire shower. The tile may look great when you're done, but it usually takes a few days before you get the feeling back in your fingers.

I discovered a way to save my hands and save money in the process. I use this Chapin Poly Foamer Sprayer (No. 1054; $22 at amazon.com). Then I buy bathroom cleaner in 1-gallon jugs from a home center. Buying in bulk saves almost 50 percent. Next, I fill the sprayer with the cleaner and pressurize the tank with the plunger pump. To apply the cleaner, just shake the sprayer to create foam and squeeze the trigger. Adjust the nozzle to get the widest spray pattern. Repressurize the sprayer as needed. The cleaner goes on in a fraction of the time, and my fingers don't ache afterwards.

The sprayer is designed to dispense most foaming solutions. Replacement valve parts are available from chapinmfg.com.

**Rick Muscoplat, Contributing Editor**

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# Handy HINTS®

FROM OUR READERS handyhints@thefamilyhandyman.com

EDITOR DAVID RADTKE • ART DIRECTION MARCIA ROEPKE • PHOTOGRAPHY TOM FENENGA

## BLADE STORAGE TUBES

My reciprocating saw gets used a lot, and the tool case becomes a mess. To keep my blades in order, I made storage tubes from 1-1/4-in. PVC waste pipe and end caps. I just cut the pipe to length, glue one end and then label and store my blades. The open end gets friction-fitted with the cap. Now I can find the right blade at a glance!

**Phil Streit**

## Nonslip ladder

I use my multi-position ladder for repairs during Montana winters, and I used to have trouble getting good footing. My solution was to apply anti-slip tape to the rungs. Its heavy-duty grit really helps grip my boots. I cleaned the rungs and then just cut the tape to size with a utility knife and straightedge. Works like a charm!

**Henry Reuter**

## Sharpener for fishing gear

I bought a couple of diamond stick sharpeners at the local hardware store and use them to keep things sharp in my fishing tackle box. Stuff like hooks and pocketknives sharpen up fast. The sharpeners are small and fit nicely into my overstuffed box!

**Dan Wyttenbach**

**Get a $100 gift card for your Handy Hint! See p.2.**

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## Stretchy clamps

Old bicycle inner tubes work great for clamping odd-shaped projects. I used them recently to hold the rungs secure in a set of chairs I glued up. Just knot the tube to the right size and then stretch it over. Set the chair on a flat surface as the glue dries. The tubes can handle jobs that conventional clamps just can't.

**Allen J. Muldoon**

## SAVE THOSE CAPS!

Instead of throwing away old aerosol can caps, I save them to use as mixing containers for epoxy. Once the epoxy hardens, I can usually reuse the caps a couple times because the epoxy peels away from the slick surface.

**Noel Hansen**

## DUST CATCHER

Whenever I have small repairs to make on wall surfaces, I use wide masking tape and fold it back to catch the dust. It saves on cleanup and helps keep the airborne dust down slightly.

**Erin Kotas**

## FREEZE THAT MUD

Whenever I buy a bucket of drywall compound for a wall-patching job, I always have some left over when I'm done. But by the next time I need it, it's always moldy or dried out and lumpy. So the last time I bought a bucket, I transferred the rest of the compound into a small pail, covered it and stuck it in the freezer. That was eight months ago. Since then I've thawed it out twice and used it for other patching jobs—it was perfect each time.

**Randy Erickson**

**Editor's note:** Manufacturers don't recommend letting pre-mixed drywall compound freeze. However, if you're just using it for patching and you mix it well, it should be fine.

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# BASEMENT FINISHING TIPS

## Slick solutions from remodeling pros

ART DIRECTION **MARCIA ROEPKE** • PHOTOGRAPHY **TOM FENENGA**

**Finishing a basement is a dream project for many DIYers. You can add beautiful living space and save thousands of dollars in the process. But you're also guaranteed to run into unusual problems.**

**We met with pros from all the trades and asked how to solve some of the problems you're likely to encounter when working in the basement. They gave us some great quick-fix tips as well as helpful strategies for conquering major hurdles. Our goal is to help you avoid unforeseen pitfalls and assist you in creating a comfortable, high-quality space that will last a lifetime.**

**by Mark Petersen**
editors@thefamilyhandyman.com

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## BOOST THE AIRFLOW

The coldest room in the basement is usually the room farthest from the furnace. Boost the airflow on long duct runs with an in-line duct fan. These fans are easy to install, but they do require a power supply. Some are hardwired and some plug into an outlet, but either way you'll need to leave an access to the junction box, which can be accomplished with a panel or a cover plate. In-line fans can run 24/7 or be installed with an optional thermostat or be wired to turn on when the furnace fan does. Expect to pay $30 at home centers for a 6-in. fan like the one shown here, but 4-in. and 8-in. fans are also available.

## Build walls on the floor

**If you have enough space, it's easier to build the walls on the floor and then tip them up into place, but you need to plan ahead. Build and install all the perimeter walls first, and then build all the interior walls, stacking them in some out-of-the-way corner as you go. Don't install any interior walls until they've all been built; that way you won't frame yourself out of open floor space.**

## Run pipes behind walls

It's a lot easier to run plumbing behind a new wall before it's nailed into place. That way you don't have to drill a bunch of holes through studs. Assemble the pipes and tape them to the foam insulation temporarily. Tip up the new wall, and hang the pipes on studs before nailing the wall permanently into place. That will make it easier to attach the hangers. The downside of this method is that you do lose a little floor space.

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## Plane down any sagging joists

Hold a straightedge across joists to make sure they form a flat surface for the ceiling. If any joist sags 1/4 in. more than the one next to it, you'll end up with a noticeable bump in your basement ceiling. Snap a line from the bottom edge of one end of the joist to the other and use a power plane to shave the board straight.

Before you start, make sure there are no nails or screws embedded in the wood. Make several passes, each shorter than the next, until you cut down to the line. Power planers are loud, so wear hearing protection along with a dust mask and safety glasses. Planers cost $70 to $170, or can be rented for about $20 for a half day. If you have several sagging joists or joists that bow upward, see "Form a Flat Ceiling" on p. 26.

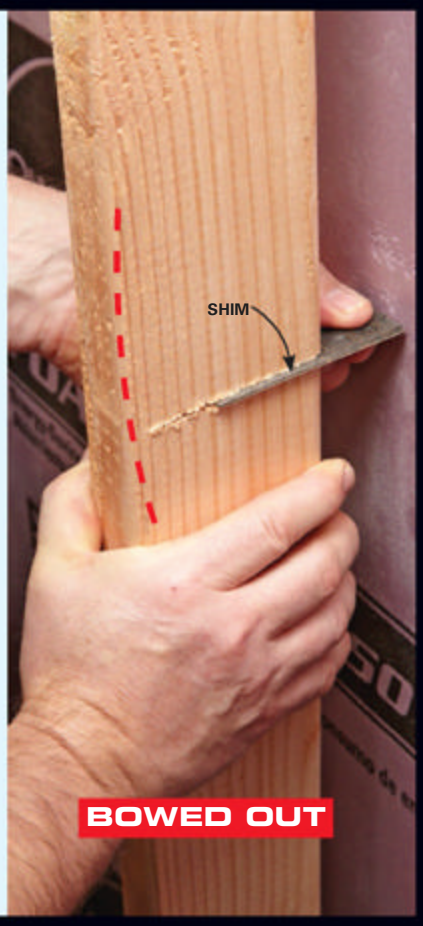
## Hide the service panel

**Sometimes the electrical service panel is located on a wall that will eventually be in a finished living space. Instead of paying big bucks to move it, simply hang a photo, painting or other piece of art over it.**

## STRAIGHTEN BOWED STUDS

Use a 4-ft. level or some other straightedge to check for bowed studs. Even if you personally checked every stud in every wall when you built it, new lumber can twist and bow as it dries. If a stud is bowed in, fill the gap with drywall shims made from paperboard (think cereal box) like the ones shown here. (A bundle of 100 shims costs $9 at home centers.) Start with longer strips and add layers of shorter strips until the gap is filled.

If the stud is bowed out and you can get to the back side of it, use a reciprocating saw to slice into the side that's bowed in. Cut far enough so the back side opens up when you press on the front side. Insert a shim in the kerf to hold the stud where you want it. Drive a nail through the separated area to keep the shim in place and add a little strength to the stud.



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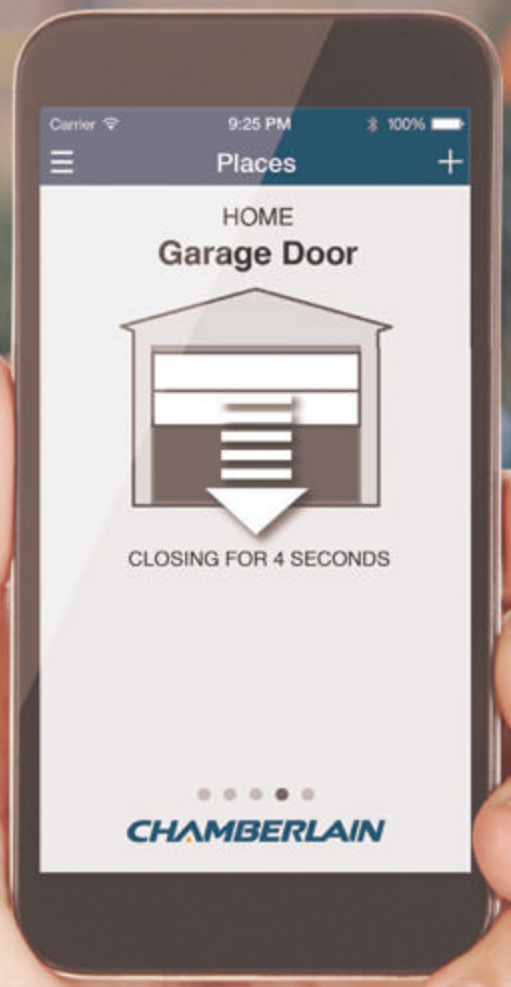


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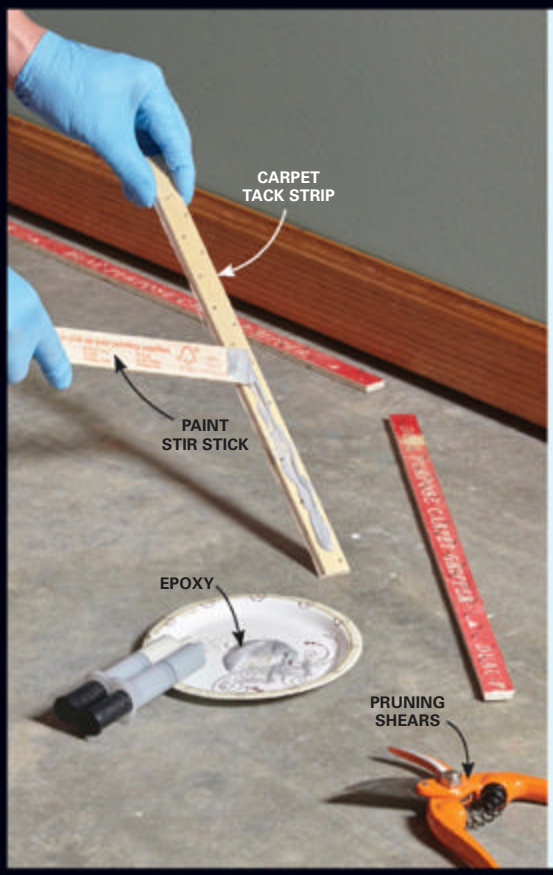
It's a lot easier to troubleshoot poor airflow problems before you hang the drywall. That's why our pros recommend using an anemometer to check the airflow at each register first. This ABM-100 Airflow Anemometer is made by AAB and connects to the headset jack on your smartphone. It costs about $45 online. After downloading the free app, all you do is answer a few simple questions about your ducts and hold it in front of the register box. The numbers, which tell volume and velocity, will depend on the size of the room and the size of the ducts.

## Don't insulate over a heated floor

**In-floor heating systems are great for heating a basement, but installing thick, heavy carpet and heat-resistant padding over them is a sure way to reduce their efficiency. High R-values are a good thing for walls and attics, but when you're covering in-floor heating, lower is better.**

**Most carpeting is made of similar materials, so the type isn't as important as the thickness—thinner is better. Carpet padding, however, is made up of different materials with different insulating properties. Waffle rubber padding is a good choice, with an R-value of 1 for a 3/8-in. pad. Urethane is a poor choice, with an R-value of 1.62 for a 3/8-in.-thick pad.**




## Glue down the carpet tack strip

Ready to install carpet? You can buy a tack strip made specifically for concrete, but it's always hit-or-miss whether the nails in the strip will penetrate. For a guaranteed solid connection, pull the nails out of the strip and glue the strips down with epoxy.

It's rare for both the floor and the strips to be perfectly straight, so cut the strips into halves or thirds (pruning shears work well). It's easier to get smaller pieces to lie flat. Wipe the floor clean before you start. Construction adhesive will also work, but you'll need to wait a couple days before installing the carpet.

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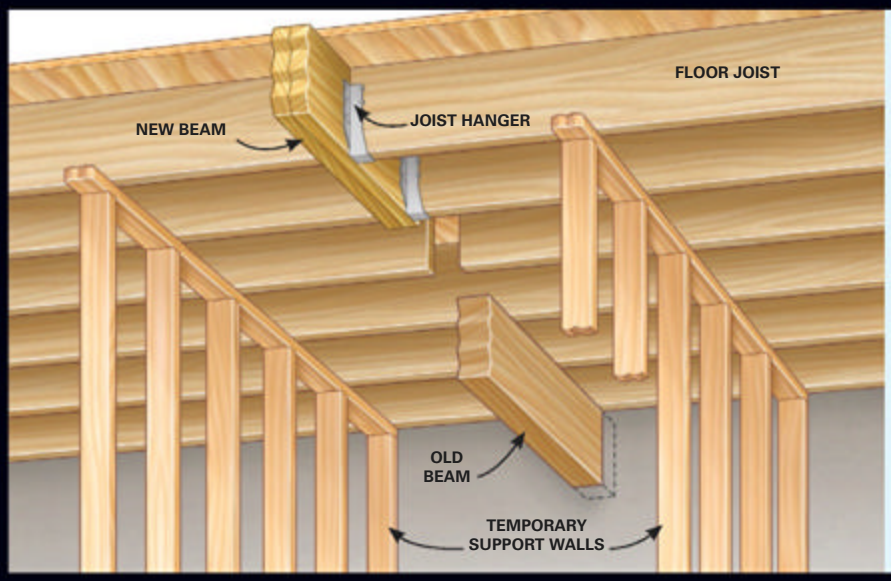


## RAISE A BEAM

Is that head-bonkingly-low beam stopping you from finishing your basement? You may be able to get it mostly out of the way by raising it to the same level as the floor joists. You'll need an engineer to tell you whether you can reuse the existing beam or need a bigger one. A lumberyard will be able to refer you to an engineer. Build temporary walls to support the joists before you remove the existing beam. Cut out a space in the joists for the new beam. Slide in the new beam and support each end. Finish by attaching the floor joists to the beam with hangers.

## Use screws on hard lumber

**Old lumber gets hard and brittle, so nailing into it can be extremely frustrating, even for the pros. A pneumatic nail gun will penetrate old wood, but it also tends to split it. If you need to connect new walls to old existing walls or attach soffits to old floor joists, make sure you have some self-tapping construction screws on hand before you start. Screws work better on old wood and create a super-strong connection. However, you might still have to predrill screw holes when you're working with really brittle wood.**

## INSTALL SKINNY LIGHTS

Many basements have low ceilings, which is why recessed lights work so well. But sometimes ducts, pipes or beams get in the way, leaving no room for the cans that house the lights. That's where LEDs come in. You can buy low-profile LED recessed lights that look like typical recessed lights but fit into standard round electrical boxes. They cost about $45 each at home centers.

## FILL THE LOW SPOTS

No matter what type of finish flooring you choose, the floor underneath must be smooth and flat. You don't want to feel bumps under the carpet or hollow spots under plank flooring. And an uneven surface is a common cause of cracked tiles, especially large tiles. Holes deeper than 1 in. and large cracks need to be patched, but uneven sections and low spots can be filled with self-leveling underlayment.

Vacuum and then mop the floor first; let it dry, and then roll out the recommended primer. Unless you have less than 10 sq. ft. to fill, get a helper so you have one person to mix the underlayment and the other to work it around with a squeegee. Don't do the mixing right next to the area you're working on; the dust could interfere with adhesion.

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## Let a pro plan the ductwork

**A poor heating and cooling design could seriously reduce the comfort of your new basement space, so don't guess at the number, size or placement of new ducts. Instead, hire a professional HVAC contractor to draw up a plan. There may be a local contractor who can supply you with a comprehensive custom plan. The ones we spoke with charge about $200.**

## QUIET NOISY PIPES

If you've never spent much time in your unfinished basement (why would you?), you may have really noisy drainpipes but not even know it. Before you bury them behind drywall, have a helper run water, drain bathtubs, empty a washing machine and flush toilets while you hang out and listen for loud swooshing noises. If you do have a noisy pipe, wrap it with carpet padding. Use a quality duct tape or zip ties to hold it in place. If the home center near you doesn't sell carpet padding by the foot, stop by your local carpet store, which may be able to give you some free scraps.

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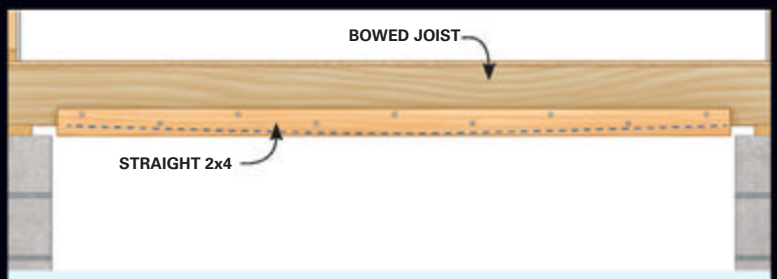


## FORM A FLAT CEILING

The bottom edges of floor joists are not always on the same plane, especially in older houses. You could spend two days trying to plane them all into alignment, or you could sister new lumber onto the existing joists. Make sure the flooring system is structurally sound and doesn't need additional bracing before establishing the new basement ceiling height (search for "structural repairs" at familyhandyman.com).

Install a straight 2x4 on the worst joist, and use that as a reference to snap lines on walls. Nail on new, straight boards to the sides of the joists even with the lines on the wall. To work in large rooms, pull a string tight and use it as a guide. It's easier to avoid ducts, plumbing pipes and electrical wires if you nail up 2x4s. Use larger-dimension lumber if the joist spaces are relatively uncluttered and you want a stiffer floor on the first level.

## Pump waste water away

Running supply lines to a basement wet bar is easy, but sometimes there's not an easy way to install a drainpipe. The solution: Get a gray-water pump and direct sink water wherever you want. These pumps are easy to install and small enough to fit inside a cabinet. They will work for dishwashers and laundry sinks as well. But they're not made for solids, so always keep a strainer in the basin. The one shown here is a Saniswift made by Saniflo. Expect to pay about $235 at home centers.

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# REPLACE A GARBAGE DISPOSAL

## 14 ways to avoid leaks and mistakes

When you flip the switch to turn on the garbage disposal and all you get is a hum—or a loud, metal-on-metal grinding noise—you know something's wrong. Maybe it's just trash stuck in the disposal, but there's also a chance that the unit is dead, kaput, never to dispose again.

Fortunately, replacing a disposal isn't hard, even if you haven't done much plumbing. Manufacturers provide clear instructions that tell you most of the things you need to know—but not everything. We talked to veteran plumbers and collected their best tips for a smooth, trouble-free installation.

### WHAT IT TAKES

**TIME:** 2 to 3 hours
**COST:** $80 to $300
**SKILL LEVEL:** Beginner
**TOOLS:** Screwdriver, putty knife, tongue-and-groove pliers, hacksaw

**by Tom Caspar**
editors@thefamilyhandyman.com

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# THE FAMILY Handyman Editors' Favorites

*The Family Handyman* editors attended the largest trade show in the home building industry—the International Builders' Show in Las Vegas. Checking out the newest tools and products from more than 1,000 industry suppliers. Here are some of their favorites! IBS

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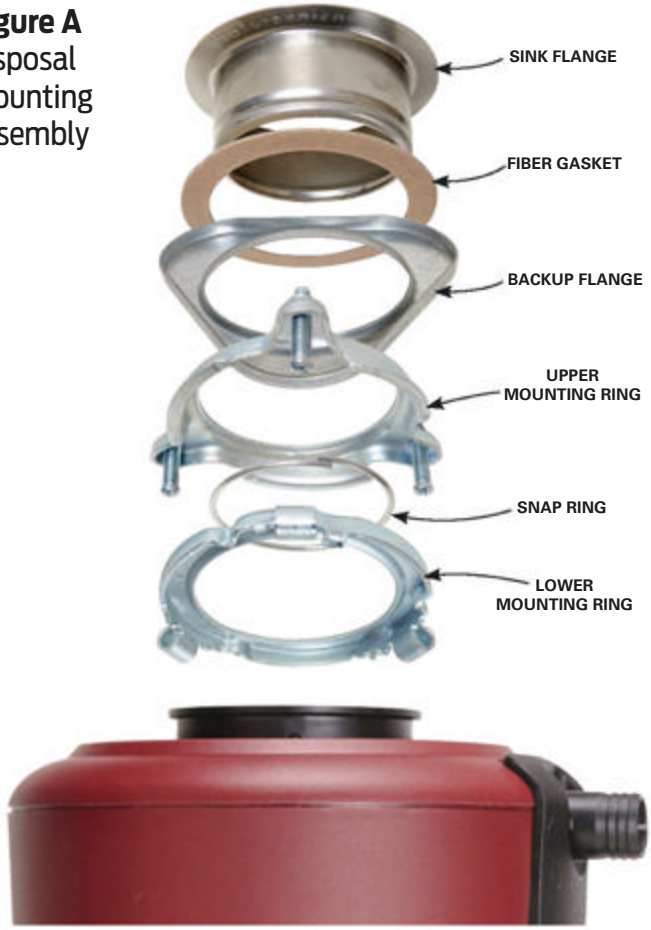
## MAKE SURE IT'S REALLY BROKEN

A disposal that seems to be dead might be revived with a simple fix. Here are three things to try:

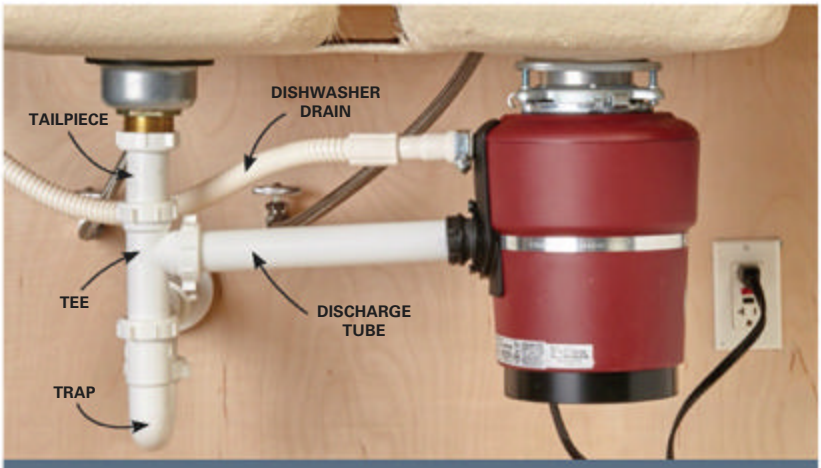
- **Look for a jam**. Something too tough to grind, such as a piece of glass, could be jamming the motor. Turn off the power and water, then unplug the disposal. (If it's hard-wired, turn off the breaker.) Remove the rubber baffle inside the drain—most just lift out—and shine a flashlight into the hole. Fish out the obstruction with a pair of tongs or needle-nose pliers.
- **Turn the motor manually**. You'll need a hex wrench. Some disposals come with one bent at a convenient angle, but if you don't have it, you can buy one at a hardware store or use a standard Allen wrench. Rotate the wrench back and forth as shown above until the motor turns a full revolution, then remove the wrench and switch on the motor.
- **Press the reset button**. If your motor has overheated by working too long, wait five minutes for it to cool down, then push the reset button. (It's usually located on the underside of the disposal.) The motor may also have overheated because of a jam. If the motor doesn't start after manually turning it, try pushing the reset button.

**Figure A**
Disposal mounting assembly




## FIGURE IT OUT FIRST

When you buy a new disposal, the box will contain all the parts you need to install it. Before you jump into removing the old unit, take a few moments to familiarize yourself with all these parts. Put them together in the correct order and try out the locking mechanism. Understanding how everything fits together ahead of time will make the job a cinch.




## Disposal system anatomy

**If you have a double sink, the best way to plumb a disposal is to run its discharge tube directly to a tee below the opposite sink. The tube must drop about 1/4 in. in order to drain properly.**

## KNOCK OUT THE KNOCKOUT!

Everyone who's installed a few disposals is aware of this mistake: Forgetting to remove the dishwasher knockout before hanging the unit.

If you have a dishwasher, the first thing you should do after removing the disposal from the box is to punch out the knockout with a hammer and a screwdriver. Fish out the knockout by reaching down inside the disposal. You don't want this plastic disc to be the first thing that the disposal tries to grind up!

This is also the best time to add the cord and plug to your disposal. It's really awkward to add these after the disposal is installed.

## Support the weight

Garbage disposals can weigh 15 lbs. or more. That's a lot of weight to suddenly catch with one hand while you're turning the lower mounting bracket with the other hand.

Before you unhook anything, assemble a support under the unit using a paint can and scraps of wood. Leave a 1/4-in. to 1/2-in. gap under the unit so it can drop a bit. Use the same support to help you install the new disposal.

## DON'T FORGET THE CORD

Surprise! Most new disposals don't come with a cord and plug. If your old unit has a cord and plug, you can remove the whole assembly and reinstall it on the new unit. (Instructions are included with the new disposal.) Or you can simply buy a new cord and plug when you buy the disposal. They're usually located together in the store.

If you're not comfortable making electrical connections, you can buy a disposal that already has a cord attached. Ask at your home center or appliance store, or search online for "garbage disposal with cord attached."

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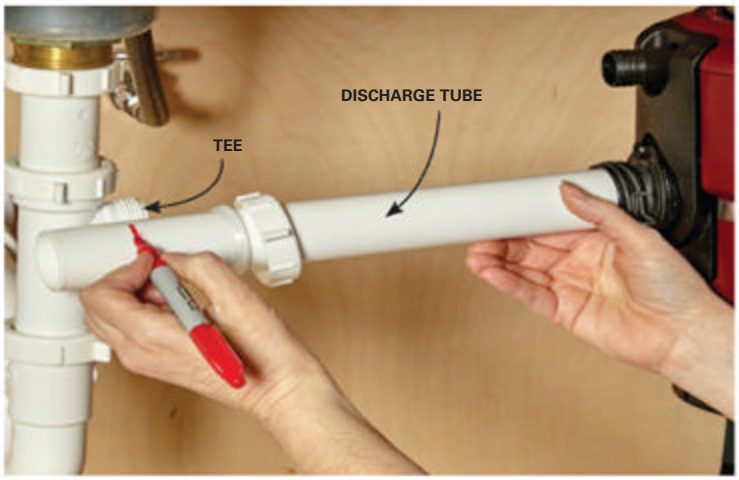


## Prepare for a new discharge tube

Your old discharge tube probably won't be the right length for your new disposal. If it's too long, simply connect it to the disposal, mark it and cut it with a hacksaw. (Loosen the other pipe connections, if necessary, to insert the tube back into the tee.) If the old discharge tube is too short, you may have to make a time-wasting trip to the store. To avoid this, make sure the new disposal includes a tube, or buy one separately at the same time for about $3.

## DON'T STRUGGLE WITH THE SNAP RING

The snap ring fits into a groove on the lower end of the sink flange. When you're working under the sink, it prevents the upper mounting bracket from falling off. Removing an old snap ring can be frustrating—unless you know this trick: Starting at the break in the ring, insert a thin-blade screwdriver between the ring and the flange. Pull down on the ring with the screwdriver's blade and walk the blade around the ring. The ring will pop right off.

### Shortcut: Keep the flange

**If your old sink flange is undamaged and tight, with no signs of leakage, you can probably leave it in place. Chances are good that the mounting brackets on the new unit will fit just fine. To find out, remove the old disposal and install the new flange on it. If it fits, you can install the new disposal using the old flange.**

## Weight down the sink flange

After you install the new sink flange, you don't want it shifting around when you're assembling the parts underneath. Movement of the flange could break the seal between the flange and the sink, inviting a leak.

Your best bet is to ask a helper to press down on the sink flange, or if you're working alone, find something to weight it down, such as the old disposal. Place an old towel under the weight so you don't scratch the sink. If the bottom of your sink is quite concave, the old disposal might not contact the flange. In that case, place a can on the flange, then weight down the can.

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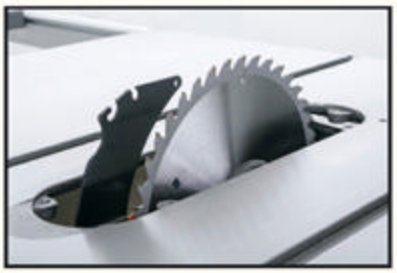

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## TIGHTEN WITH PLIERS

When you hang the new disposal, rotating the lower mounting ring tightens the seal between the disposal and the sink flange. The lower ring rides up a set of ramps on the upper ring—pretty neat! But the final inch or so of rotation requires a fair amount of force.

The easiest way to apply that force is to squeeze them together using tongue-and-groove pliers, such as Channellocks. You'll need medium or large pliers to do this. Unlike prying on the lower ring with a screwdriver or hex wrench—the method recommended in most instruction sheets—squeezing can't disturb the position of the sink flange and cause it to leak. Plus, it's easier on the wrists.

## Compare outlet heights

A disposal's discharge tube must slant about 1/4 in. downhill in order for it to drain properly (see **Figure A**, p. 31). Creating that drop may be a small problem if the outlet on your new disposal (left) is lower than the outlet on your old one, as shown above.

To be prepared, measure the distance from the outlet to the top of each disposal before you remove the old unit. If the new unit's outlet is lower, you must also lower the tee that the discharge pipe connects to. Loosen the two nuts that connect the tee to the tailpiece above and the trap below. Try lowering the tee to see if the tailpiece is long enough. If it's not, you'll have to replace it with one that's slightly longer.

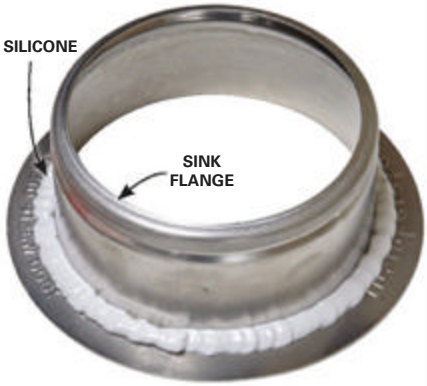
## Spend a little more

**You can buy a 1/3-hp disposal for $80 or less, but our experts suggest that a more expensive unit with at least 3/4 hp would be a better choice. The more powerful the motor, the less chance it will jam. In addition, higher-priced disposals are generally quieter and have longer warranties.**

## SILICONE SEALS BEST

Plumber's putty is typically recommended for sealing the sink flange to the sink itself, but silicone will provide a more reliable seal. With silicone, there's almost no chance—now or later—that the flange will leak.

However, when it's time to replace the disposal and the sink flange again, you should know that old silicone is much harder to remove than old plumber's putty. But that's why it works better!




## Inspect the plumbing first

**Look over all the pipes under your sink for any sign of leakage before heading to the store to buy a new garbage disposal. You might want to replace more than just the disposal itself, so you may as well make a list and be prepared!**

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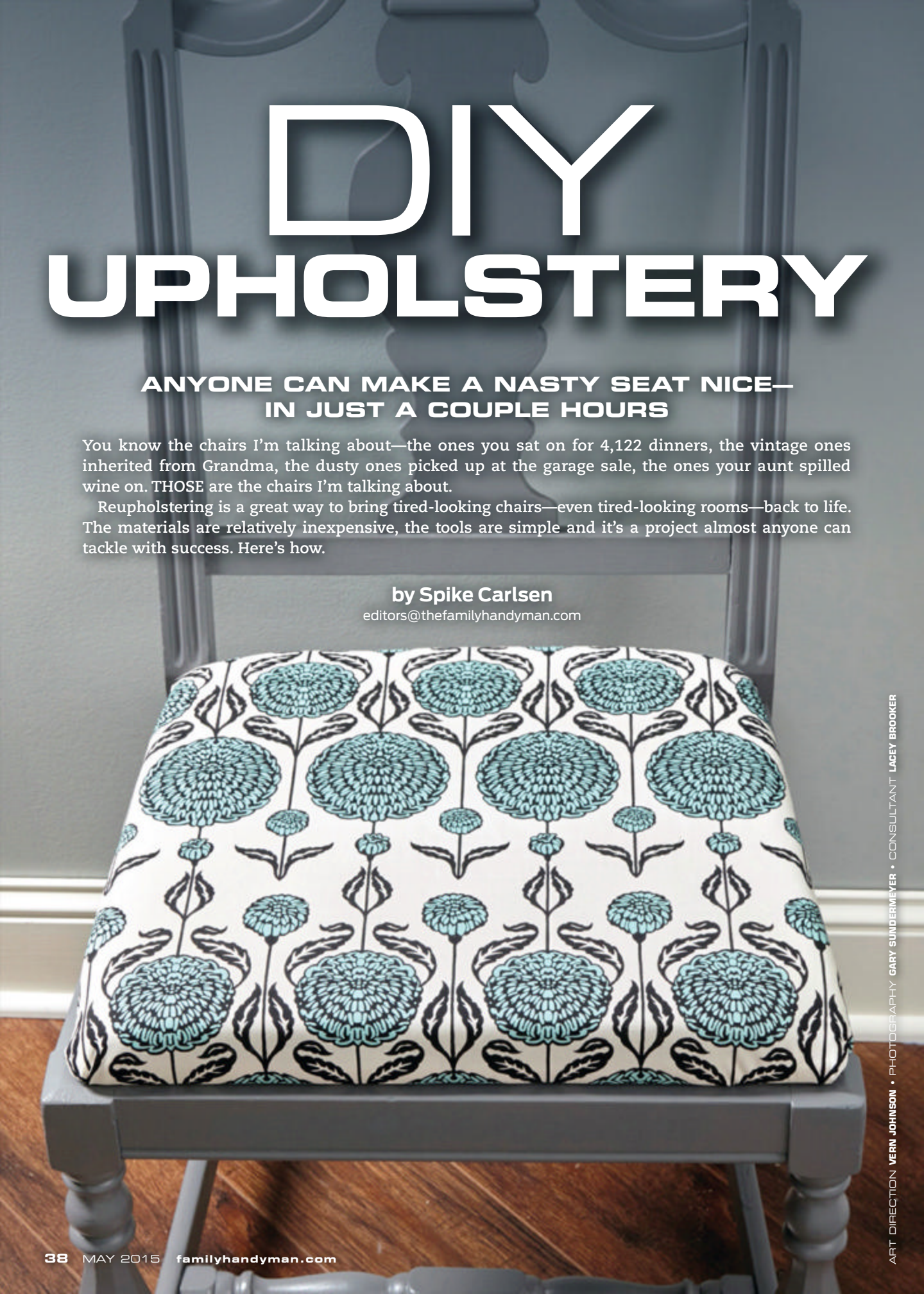
**by Spike Carlsen**
editors@thefamilyhandyman.com



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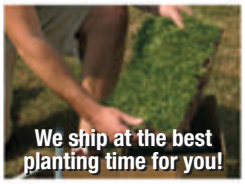
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When ordinary lawns brown up in summer heat and drought, your Zoysia lawn stays green and beautiful. The hotter it gets, the better it grows. *Zoysia thrives in blistering heat (120°)*, yet it won't winter-kill to 30° below zero. It only goes off its green color after killing frosts, but color returns with consistent spring warmth. Zoysia is the perfect choice for water restrictions and drought areas!

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One of our typical customers, Mrs. M.R. Mitter of PA, wrote how "I've never watered it, only when I put the Plugs in... Last summer we had it mowed 2 times... When everybody's lawns here are brown from drought, ours just stays as green as ever!"

### Order Now And Save!

The more Amazoy™ Zoysia Plugs you order, the more you SAVE! And remember, once your Zoysia lawn is established, you'll have an endless supply of new Plugs for planting wherever you need them. Order now!

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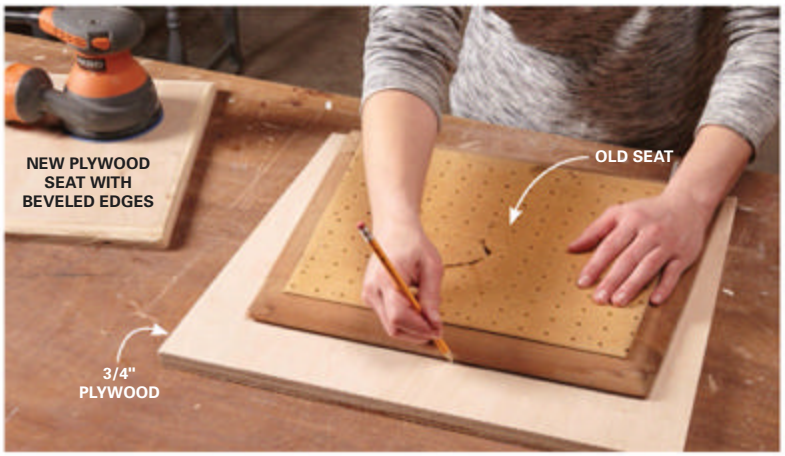
**1 REMOVE THE OLD UPHOLSTERY**
Pry and yank the staples with a screwdriver and pliers or side cutters. Remove the upholstery and cushion material.




**2 MAKE A NEW SEAT**
If the old seat is in bad shape, cut a new one from plywood. Trace around the old seat, then cut with a jigsaw or circular saw. Bevel or soften edges with a sander or router to match the old contour.

## MEET THE PRO

Lacey Brooker has been reupholstering chairs and repurposing furniture for half a decade. She's the owner of Piccadilly Prairie, a Minneapolis antiques shop specializing in shabby chic furnishings and accessories.

## Chairs are not all created—or upholstered—equally

Here we'll show you how to reupholster a chair with a "drop-in" or "screw-on" seat—a style shared by many benches and stools. Seat bases can be constructed from a variety of materials: solid wood, plywood, pegboard and others. The seats are normally screwed on but can also be glued on or dropped in. The cushions can be foam, cotton or other natural materials.

**WHAT IT TAKES (per chair)**

**TIME:** 1 to 2 hours
**COST:** $20 to $50
**SKILL LEVEL:** Beginner
**TOOLS:** Scissors, bread knife, stapler, basic hand tools

# WHICH STAPLER WORKS BEST?

**All the staplers shown will do the trick. The question is: How hard do you want to work—and squeeze—to "do the trick"? Your stapler buying decision may also hinge on a few other factors, including how often you'll use it, what else you might use it for—and whether you need a good excuse to buy an air compressor.**

### HAND STAPLER

**Cost: $15 to $30**
It will give your hand a workout, and you may have to occasionally use a hammer to drive the staples all the way in, but you can still get good results. Make sure you hold the nose of the stapler firmly against the seat base when you pull the trigger.

### ELECTRIC STAPLER

**Cost: $25 to $75**
We used one for our project and it worked flawlessly. You still need to firmly press the nose against the fabric and plywood to get a well-seated staple—but it's way easier on the hand. As a bonus, some models also shoot 3/4-in. and shorter brad nails.

### PNEUMATIC STAPLER

**Cost: $40 to $150 (plus air compressor)**
If you're going to be stapling for hours on end, invest in a pneumatic stapler. These drive the staples flush with the pull of a finger and allow you to be extremely accurate in the placement of your staples. Some tools also drive brad nails up to 1-1/4 in.

**3 CUT THE FOAM** Trace the outline of the seat onto 1-in.-thick foam. Cut the foam with a bread knife. To avoid tearing the foam, pull the knife toward you, using light pressure and short strokes.

**4 ADD THE BATTING** Cut the batting so it overhangs all sides of the seat by about 4 in. Then drive a single staple on each side to hold the foam in place.

Our seats, for example, were made from a pegboard-like material secured to a 1x3 framework, covered with horsehair padding. Someone had already reupholstered the chairs, going directly over the old fabric. Expect the unexpected and adjust your game plan accordingly.

## Round up your materials

When you shop, buy "upholstery grade" fabric for its strength and stain resistance. Fabric prices vary wildly; you might find something for $5 in the bargain bin or spend 10 times as much. We bought our fabric, foam and batting at a fabric store. For the dust cover, we used landscape fabric from a home center.

## Remove the old and get ready for the new

If you're re-covering more than one chair, number each chair and seat; that way, the screw holes will line up properly when you reinstall the seats. There are special tools just for yanking upholstery staples or tacks, but you can get by with basic hand tools (**Photo 1**). **Tip**: Old, dull side cutters are perfect. They grip staples well but don't cut them off.

Remove the padding and inspect the seat. If the wood base seems solid, reuse it. If it's cracked, use it as a template to make a new one (**Photo 2**). We used a sander to taper the edges to match the profile of the old one. Plop the seat on top of the foam and outline it with a marker. Use a serrated bread knife (**Photo 3**) to cut just inside the line.

**5 CENTER THE PATTERN** Determine the best layout for your material; make sure any patterns or stripes align correctly. Hang the edge of the seat over your work surface then drive a staple, from below, in the centers of the front and back.

## Install the new fabric

Place a section of batting—4 in. wider in all directions than the size of your chair seat—on a flat work surface, then set your foam and seat on top. Lightly stretch the batting and drive one staple (**Photo 4**) along each edge.

Flip the seat over, then center your material on top (**Photo 5**). Cut the material so you'll be able to wrap it up onto the chair bottom at least 4 in. in each direction. With the seat facing up and the front edge overhanging the work surface, drive one staple through the bottom to hold the material in place. Rotate the seat 180 degrees, then tack the back the same way.

Check your pattern alignment one more time, then flip the seat upside down. Starting at the front middle staple and working toward the corners, use the palm of your hand to lightly stretch the material, then drive a staple every 2 in. (**Photo 6**). Keep the staples within an inch of the edge, and secure the batting and fabric at the same time. Use your entire hand, not just fingertips, to tighten the material.

## Don't worry about mistakes

**Upholstery work is forgiving. If you make a mistake, just yank out the staples and try again.**

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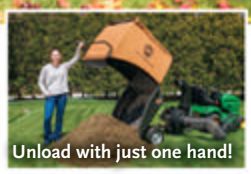

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**6 STAPLE THE FRONT EDGE**
Working from the center outward, install staples along the front as you lightly tension the material with your hand. Stop 2 in. from the corner. Flip the seat over several times to check the pattern as you go. Repeat the process along the back edge and sides.

**7 TRIM THE CORNERS**
Cut off the excess batting and upholstery so you don't end up with ugly lumps at corners.

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**8 WRAP THE CORNERS**
Create a "butterfly corner" by first tucking the center under, then folding and tucking the material to each side. Flip the seat over and drive staples to hold the corner tight.

This way you'll avoid little dips and puckers in the pattern.

Repeatedly flip the seat over to check the pattern for straightness; it's easier to keep flipping and checking than to go back and pull staples. Our expert flipped the seat over and checked the pattern a dozen times while stapling each edge. Stop stapling 2 in. from each corner.

Secure the back edge in the same way, stretching the material lightly as you work. Then complete the sides, again repeatedly checking the pattern.

## Corners are the key

You can make simple, single-fold "hospital corners" if the edges of your seat are concealed by a frame. But in most cases, the front corners will be exposed and will look better with a "butterfly corner."

Remove excess batting and material from the corners (**Photo 7**) then flip the seat right side up and experiment with a few corner tucks. Fold the center inward, then overlap each side onto that fold (**Photo 8**). When the corner looks symmetrical and tight, flip the seat over and staple the folds in place.

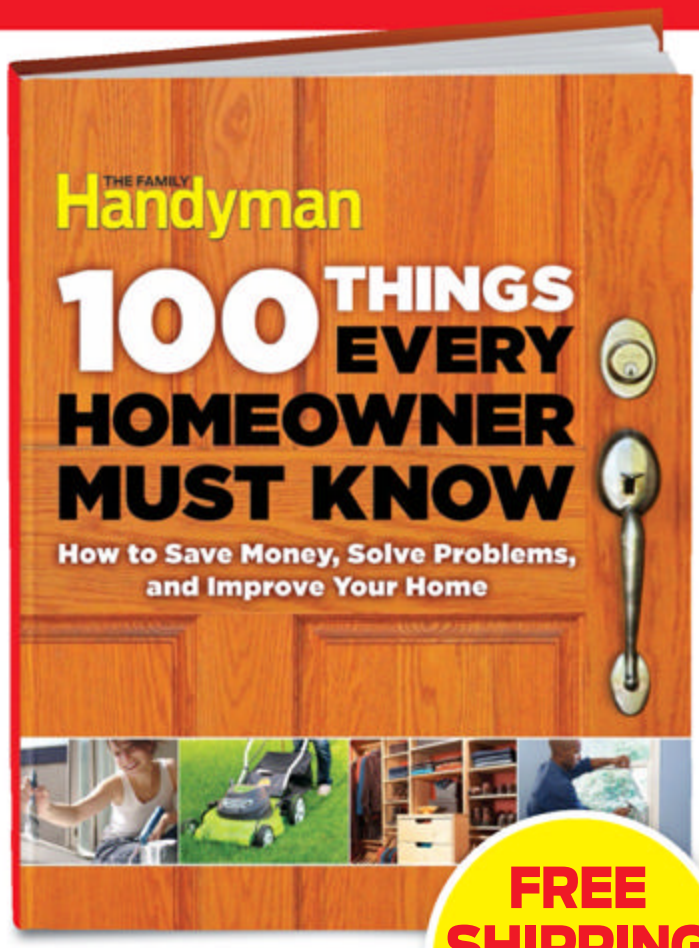
When the corners are done, flip the seat over and cut off the excess material. Staple on a dust cover (**Photo 9**).

**MATERIALS** (per typical chair)

- 1/2" to 3/4" plywood (if needed)
- 30" x 30" quilt batting
- 1" x 24" x 24" high-density foam
- 30" x 30" upholstery fabric
- 24" x 24" landscape fabric (optional)

**9 INSTALL THE DUST COVER**
After you trim the excess fabric and batting, staple on a dust cover—we used landscape cloth. A dust cover neatly hides the exposed fabric edges.

# The owner's manual for your house.



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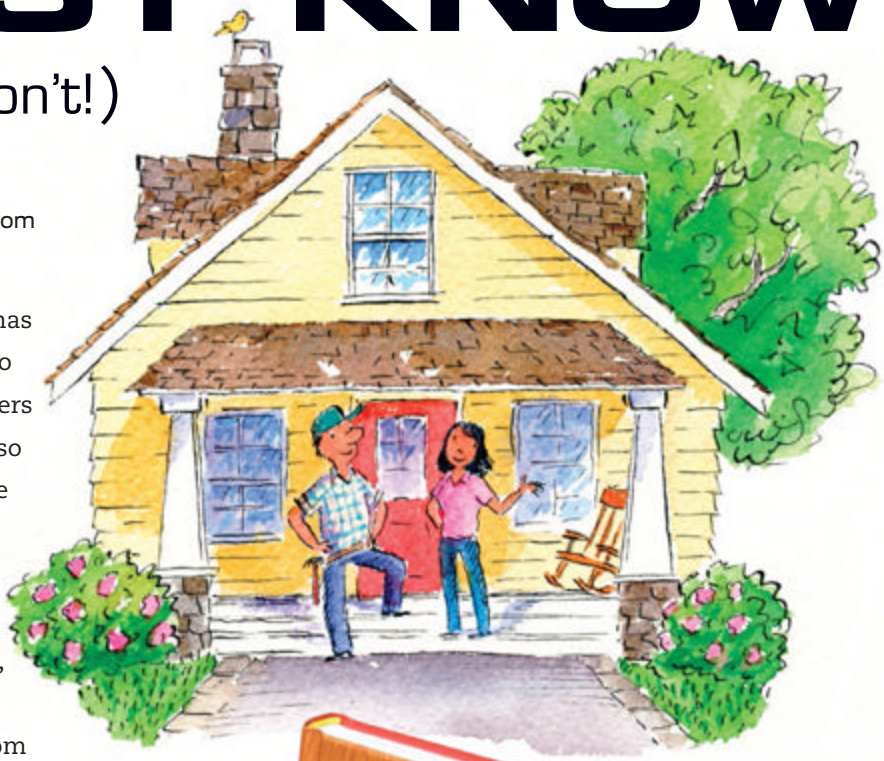
**#1 in DIY Home Improvement**

# WHAT EVERY HOMEOWNER **MUST KNOW**

## (but most don't!)

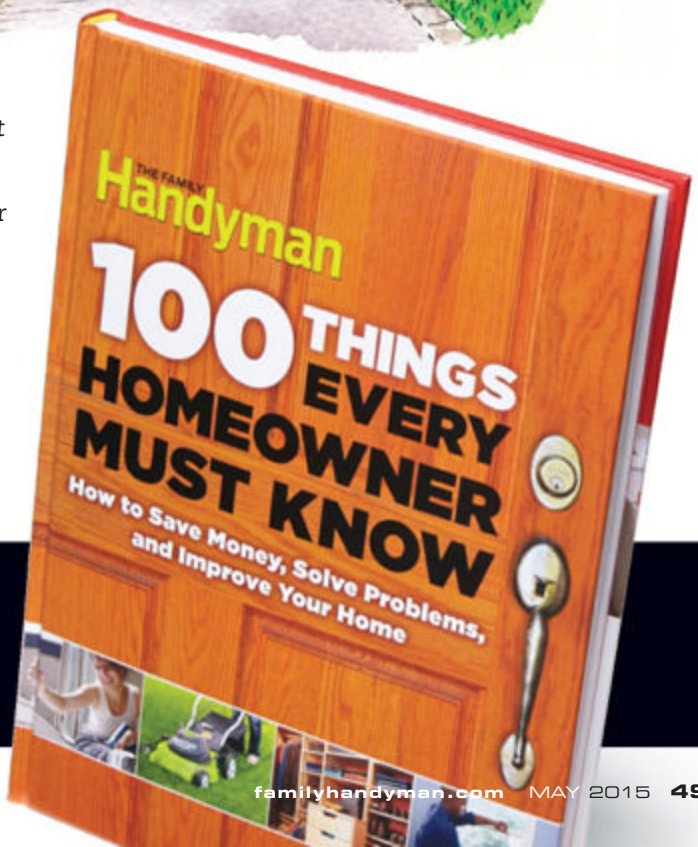
**by Gary Wentz**
editors@thefamilyhandyman.com



For more than 60 years, *The Family Handyman*'s mission has been to help homeowners do things. But smart homeowners don't just do things. They also *know* things. So we spent the last year compiling those things. We consulted scores of professionals—from plumbers to architects, real estate agents to insurance experts—and heard from hundreds of experienced homeowners.

The result is *100 Things Every Homeowner Must Know*, a book for new homeowners and veterans, devoted DIYers and people who have never picked up a tool. The following pages offer a small sample of the money-saving, problem-solving tips that fill the book.

**Disclaimer:** The "100 Things" in the title isn't quite true. The book actually contains nearly a thousand things homeowners should know, plus dozens of hints, tips, goofs and easy fixes.

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**Visit rdstore.com/Homeowner and enter the promo code 100TEHMK for free shipping. *100 Things Every Homeowner Must Know* is also available wherever books are sold.**

ART DIRECTION **VERN JOHNSON** • PHOTOGRAPHY **HSP** • ILLUSTRATION **STEVE BJÖRKMAN**

## DON'T SQUISH ANTS

To fight an ant invasion, place ant bait in areas where you've seen them, like under the sink and along walls. You'll probably see more ants after you set out the bait. That's a good thing. It means the ants have found the toxic bait and are working hard, carrying the bait back to the colony, where they'll share it with the rest of the ants, including the queen. Resist the temptation to step on them. Remember that they're working for you now—serving a deadly lunch to the whole colony.

**CHECK FOR LEAKS**
Close windows and turn off fans and the furnace. Light an incense stick and hold it near the cover plate. If air is flowing in or out, the smoke will show you.

## SEAL SWITCHES AND OUTLETS TO SAVE MONEY

In most homes, especially older ones, sealing air leaks is the easiest, most effective way to cut heating and cooling bills. And the easiest place to start is with switches and outlets on exterior walls. A few packs of foam gaskets (available at home centers) will cost you about $5, and you can install a dozen in less than a half hour.

**STOP LEAKS**
Unscrew the cover plate, place the foam gasket and put the cover back on. There are live wires inside the junction box—keep fingers and tools out!

## DIRTY FILTERS WRECK FURNACES

Any heating and cooling technician will tell you the same thing: Dirty furnace filters are the No. 1 cause of breakdowns. Plus, a dirty filter reduces the system's efficiency and raises your energy bills. Replacing filters on schedule is easy to do—and also easy to forget. So try this: Buy several filters and label them with the month they should be installed. Depending on your system and the filters, that may be every month or every few months.

## NO WATER? FLUSH WITH A BUCKET

Before shutting off the water supply to tackle a plumbing project, fill some buckets with water. That way you'll be able to flush the toilet, even with the water off. Dump a few gallons into the bowl or fill the toilet tank. It works just as well as the usual flush but won't refill the bowl. This trick will also help your family cope if the city water supply stops because of a power outage or storm.

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**INSULATE DUCTS**
In attics and crawl spaces, wrap ducts with foil-faced fiberglass batts.

**SEAL LEAKY DUCTS**
Cover seams in ductwork with aluminum foil tape. Where round ducts meet square ducts, use silicone caulk.

## DUCTS CAN WASTE MONEY

Ductwork that's full of air leaks can waste 40 percent of your heating and cooling dollars. Uninsulated ducts that run through attics or crawl spaces can waste 30 percent. The solutions are simple enough for any beginning DIYer, but there are complications: Sealing ducts is possible only in unfinished spaces. And working in an attic or crawl space is just plain miserable. So before you go through that ordeal, hire an HVAC pro to inspect and test your ducts. If your home was built within the past 15 years, your ducts are probably well insulated and sealed.

**Save money!**
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## STEAM-CLEAN GROUT

Professionals often use steam to clean grout, and so can you. A household steam cleaner doesn't have the power or speed of a pro model, but with a little extra patience, you can deep-clean grout effectively. In most cases, steam cleaning is much faster and easier than scrubbing—though working with steam in a small space is a hot, sweaty job. Switch on the bath fan! Small, handheld steam cleaners start at less than $30. Larger models like the one shown here cost $100 or more.

## A LEAKING WATER HEATER IS A TIME BOMB

**Water heaters sometimes leak from the drain valve or relief valve. Those valves are easy to replace. But if a leak is coming from the tank, you've got serious trouble. The tank is lined with a thin coat of glass. Over years, that glass begins to crack, the steel begins to rust away and a puddle appears on the floor. Left alone, the tank will eventually rupture, causing an instant flood. It may take months for a leak to become a flood, or it may take days. But it will happen. Don't gamble. Replace that time bomb now.**

## DAYTIME IS CRIME TIME

Most of us think of burglary as a nocturnal activity. That used to be true. But these days, most burglaries occur between 10 a.m. and 5 p.m. In many cases, the crooks get in through unlocked doors or windows.

## CLEAN YOUR VACUUM FILTER—OR ELSE

Bagless vacuum filters are convenient and efficient. But if you don't clean them regularly, the strain of pulling air through a dirty filter can burn out the vacuum's motor. The typical way to clean the filter of a bagless vacuum is to tap it against the inside of a trash can until most of the dust falls off. But that raises a cloud of dust and doesn't get the filter completely clean. For faster, neater, more effective filter cleaning, use a shop vacuum. Clean prefilter screens and post-filters the same way. Just remember to be gentle with the shop vacuum's nozzle. Some filters have a coating that you can scrape off if you press too hard.

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Try the ***Magnificat II*** for 60 days and if you are not receiving compliments, please return the watch for a full refund of the purchase price. The precision-built movement carries a 2 year warranty against defect. If you trust your own good taste, the ***Magnificat II*** is built for you.

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## BEFORE YOU BUILD: FIND YOUR PROPERTY LINES

Before you build anything in your yard (a deck, fence, even a doghouse), you have to know where your property lines are. If you build over the line or too close to it, local authorities can make you demolish your project.

Iron stakes mark property lines in most communities. They're usually located at corners and jogs where lines meet. Start by requesting a plot plan from city hall. You may be able to locate stakes by dragging a rake over the suspected locations. But more likely, the stakes will be several inches underground. In that case, rent or buy a metal detector (some cost less than $40). When you've found the target, dig to make sure it's really a stake and not just a lost quarter.

## SYNTHETIC SOAP = LESS SCUM

Minimize scum with "synthetic" soap. Synthetic soaps make cleaning your shower or bath easier because they don't contain the ingredients that create tough soap scum. Any liquid or gel soap is synthetic. Most bar soaps are ordinary soaps. But a few, including Zest and Ivory, are synthetic.



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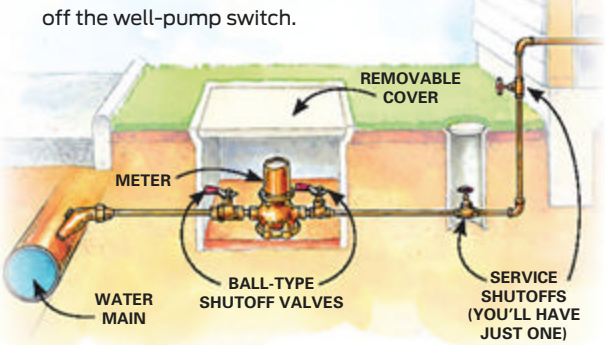
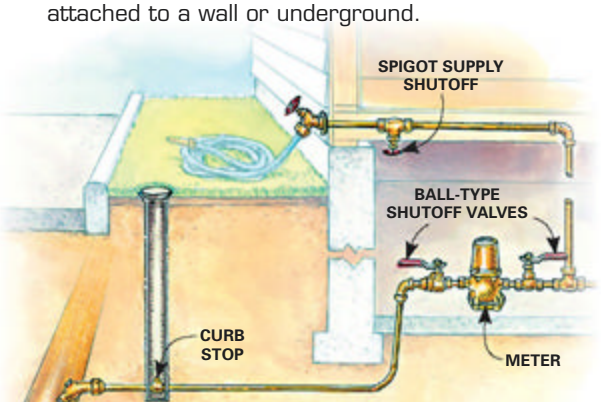
## SHUT OFF THE WATER BEFORE VACATION

Every insurance adjuster has a hundred stories like this one: The homeowners left town Friday and returned Sunday to find thousands of dollars in water damage. The moral of the story: Before going on vacation, turn off the main valve. In less than a minute, you can eliminate the most common cause of home damage. In most cases, you'll find two valves—one before the water meter and one after. Closing either of them will do the trick. If you have a well instead of city water, simply turn off the well-pump switch.




### IN WARM CLIMATES ...

The main shutoff is often outside, attached to a wall or underground.




### IN COLDER CLIMATES ...

The main shutoff is typically in the basement. There is also a "curb stop" shutoff that requires a special tool to operate.

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# PRO tips

BY MARK PETERSEN editors@thefamilyhandyman.com

# Skid steer basics

ART DIRECTION ELLEN THOMSON • PHOTOGRAPHY TOM FENENGA

Some jobs are just too big for a shovel and a wheelbarrow. But renting and operating a skid steer can be intimidating, and you may be reluctant to give it a shot. Well, here's some great information to help you decide. We asked a lifelong heavy-equipment operator for tips on basic operations, hauling and safety. He also told us which type of machine to rent and pointed out the times you might be better off hiring a pro.

**MEET THE EXPERT**

**Mike Doyle worked as a heavy-equipment operator for 45 years. He's run everything from a 5,000-lb. skid steer up to an 85-ton excavator.**

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- Darlene and Jack B., CA

**The Voice Clarifying TV Ears Headset** is specifically designed for clear, distinct, TV listening, without turning up the volume. With TV Ears wireless technology, you set your own headset volume and tone, while other TV listeners hear the television at a volume level that's comfortable for them. You can even listen through the headset only and put the TV on mute if the situation calls for a quiet environment…maybe a family member is sleeping in the next room. Or perhaps you are the only one who is interested in listening to the ballgame.

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- Robert Forbes, M.D., California

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*- Darlene & Jack B., CA*

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# Affordable *New* Digital Hearing Aid *Outperforms* Expensive Competitors Delivers *Crystal - Clear* Natural Sound

Reported by J. Page

Chicago: Board-certified physician Dr. S. Cherukuri has done it once again with his newest invention of a medical grade ALL DIGITAL affordable hearing aid.

This new digital hearing aid is packed with all the features of $3,000 competitors at a mere fraction of the cost. Now, most people with hearing loss are able to enjoy crystal clear natural sound — in a crowd, on the phone, in the wind — without suffering through "whistling" and annoying background noise.

After years of extensive research, Dr. Cherukuri has now created a ***state-of-the-art*** digital hearing aid that's packed with the features of those expensive $3,000 competitors – at a ***fraction of the price***.

## New Digital Hearing Aid Outperforms Expensive Competitors

This sleek, lightweight, fully programmed hearing aid is the outgrowth of the digital revolution that is changing our world. While demand for "all things digital" caused most prices to plunge (consider DVD players and computers, which originally sold for thousands of dollars and today can be purchased at a fraction of that price), yet the cost of a digital medical hearing aid remained out of reach.

Dr. Cherukuri knew that many of his patients would benefit but couldn't afford the expense of these new digital hearing aids. Generally they are not covered by Medicare and most private health insurance.

The doctor evaluated all the high priced digital hearing aids on the market, broke them down to their base components, and then created his own affordable version — called the **MD**HearingAid®***AIR*** for its virtually invisible, lightweight appearance.

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Using advanced digital technology, the **MD**HearingAid®***AIR*** automatically adjusts to your listening environment — prioritizing speech and de-emphasizing background noise. Experience all of the sounds you've been missing at a price you can afford. This doctor designed and approved hearing aid comes with a full year's supply of long-life batteries. It delivers crisp, clear sound all day long and the soft flexible ear buds are so comfortable you won't realize you're wearing them.

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## Ecstatic Users Cheer

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— Dennis

*"I'm a physician, and this product is just as effective (if not more) than traditional overly-priced hearing aids. I will be recommending (it)."*
— Dr. Chang

*"As a retired advanced practice nurse, I purchased the MDHearingAid AIR after the* Wall Street Journal *review. I am so pleased with the quality. You are providing a real service to our affordable health care."*
— Ned Rubin

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## SAFE HAULING

Make sure you know the weight of the equipment you're hauling and whether you have an adequate, truck, trailer and trailer hitch to safely haul it. Trailers typically list tow capacities on the tongue, and trucks display it on the inside of the driver's doorjamb.

The bulk of the weight should be over, and just in front of, the trailer tires. You want more weight toward the front of the trailer, but not so much that the front truck tires lose traction. You should see the rear truck bumper drop several inches when you drive forward on the trailer. The straps or chains should be pulling the machine toward both the front and the back (kind of like the old torture rack).

If you've never pulled a trailer before, hauling a skid steer is probably not the place to start. Ask the folks at the rental center to deliver it.

## Fill the bucket before tipping it back

Push the bucket straight into the dirt pile before tipping it back or the bucket will act like a plow and stop all forward movement. Sometimes it helps to wiggle the bucket up and down in order to worm your way into the pile.

## AVOID ACCIDENTS

The first thing you might notice when you climb into a skid steer is that it's almost impossible to see behind you. And the blind spots on the sides can also be severely restrictive, depending on the height of the lift arms. **Caution**: Tell everyone in and around the work area not to approach the skid steer unless they get a clear and recognizable signal, like thumbs up. And keep Fido in the house until the work is finished.

Limited vision not only endangers your loved ones and pets but also puts your property at risk, so if it moves, move it. Cars, boats, swing sets, picnic tables, clotheslines, doghouses—get it all out of the work area.

# Going...Going...GONE!
# United States Baseball Legal Tender Coin

*Cooperstown, N.Y.*

The National Baseball Hall of Fame and the U.S. Mint have released the FIRST EVER *curved* American coin. This legal tender half dollar was struck in 2014 to honor the 75th anniversary of the National Baseball Hall of Fame and Museum.

### First Ever Curved American Coin

The coin's curved design is a first in American history. The outward curving 'tails' side of the coin depicts a baseball—complete with intricate stitching. The inward curving 'heads' side of the half dollar reveals a classic leather baseball glove, with the curve perfectly reflecting the natural shape of a weathered and well-loved baseball mitt. Among the celebrity judges who selected this FIRST EVER curved design were Hall of Famers Joe Morgan, Brooks Robinson, Ozzie Smith, Don Sutton, and Dave Winfield. The curved design is like nothing you have ever seen before. You won't believe it when you hold it!

### Going...Going...GONE

Public demand for these coins exploded and a number of versions sold out almost immediately. The Baseball Hall of Fame Half Dollar will go down in history as a runaway best seller. But even though the coins are no longer available from the U.S. Mint, you don't have to strike out.

If you CALL NOW, you can lock in your very own piece of baseball history—not to mention the *most unusual American coin ever struck!*

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## Tilt the bucket as you lift

Whenever you lift a load high in the air, tilt the bucket down as you lift. If you don't, the load will spill over the back side of the bucket and end up right on top of the machine. It's a messy rookie mistake, and unless you enjoy the taste of dirt (some of that dirt *will* end up in the cab), it's one you'll want to avoid. Many higher-end machines have a self-leveling bucket feature.

## Carry loads low and uphill

A short wheel base makes skid steers super maneuverable, but it also makes them unstable, especially with the arms raised high. Whenever you're transporting a load, keep it low—just high enough so you don't bottom out on the ground.

When working on hills, the heavy side of the machine should always face uphill. If the bucket is full, the front side is the heavy side; the opposite is true if the bucket is empty. That means you'll occasionally have to back up or down a steep grade. Avoid traversing hills sideways; keep the machine facing either up or down the hill.

## HANDPICK STUBBORN ROCKS

**Rocks are a headache when you're trying to grade a surface smooth. They create a trench as you drag them. It's tempting to try to pick them up and move them with the bucket, but it's rarely that easy. You can waste a whole bunch of time messing around trying to grab hold of one stubborn rock. You'll get lucky sometimes, but your best bet is to get out and physically throw them aside—even the pros get out of the machine once in a while.**

## SAFETY TIPS

- **Get familiar with the controls. Practice at half speed for a while before loading the bucket.**
- **Shut off the engine before exiting the machine.**
- **Never walk under raised arms.**
- **Always wear hearing protection.**
- **Never lift or transport passengers on any part of the skid steer.**
- **A seat belt will keep you in the machine in case of a rollover, and it will also prevent your body from slamming against the bar if you come to a sudden stop.**
- **Call 811 to have the utilities located before you dig.**

## Use the bucket to get unstuck

It's not hard to get stuck in slippery clay or loose, sandy soil, but it's easy to get unstuck by using the bucket to push your way out. It only works one way—you can't get unstuck by pulling yourself out. When you're backfilling the inside of a basement or foundation, always drive straight in and back straight out. If you get stuck with your back up against a wall, you're in trouble. If you know the soil conditions are going to be dicey, rent a skid steer with tracks; tracked machines are much less likely to get stuck.

## Keep the work area smooth

**Skid steers are notoriously tough on the terrain. It's easy to tear up the ground in no time. Skid steers don't have a suspension, so holes and ruts in the ground make for an extremely rough ride. Take the time to occasionally smooth out your work area—your back and kidneys will thank you.**



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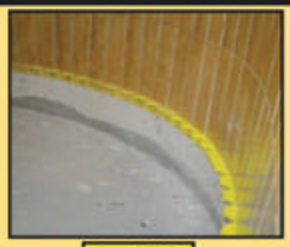
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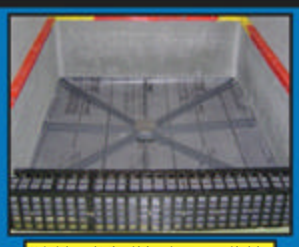
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## RENT OR HIRE?

**A medium-size skid steer costs about $200 to rent for one day (not including the trailer or delivery fees), or about $600 per week. A pro will charge $65 to $95 per hour. So think it through. It may cost less to hire a pro than to rent a machine and operate it yourself. If all you have to do is smooth out some black dirt in your suburban backyard, hire a pro. Achieving a smooth, dip-free grade is trickier than it looks, and it will likely take you much longer than a pro and end up costing more. And it takes many hours of practice to become proficient at complex jobs like working on slopes or building boulder walls.**

**Digging and moving dirt are relatively easy, and you can get the hang of them pretty quickly, so renting a skid steer makes sense for those jobs where you have to move copious amounts of soil from point A to point B. Renting also makes sense if there will be a lot of downtime between uses of the skid steer, like intermittently hauling sand and pavers for a large patio or other landscaping projects. Renting isn't cheap, so make sure the project is ready to start the minute you get the machine home.**

## Shake your bucket clean

Wet or heavy soils can stick to the inside of the bucket. When you dump a load, tap the controls to shake the bucket back and forth to free up the more stubborn chunks. Occasionally get out and check to make sure the bucket is clean. A half-full bucket is an inefficient way to move dirt around. Keep a shovel nearby to scrape it out. Dirt is more likely to get stuck in a rusty, pitted bucket, so if you get to choose your rental machine, get one with a well-maintained bucket.




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## Protect landscaping with plywood

**Skid steers are heavy—really heavy. Protect sidewalks, walkways and patios with a piece of plywood. And don't drive over septic mounds, tanks or drain fields.**

## WHICH MACHINE TO RENT?

**Bigger isn't always better: Smaller machines work great in tight areas (to backfill inside basements, for example), and in wooded areas where the trees are fairly close together. Smaller machines also do less damage to finished lawns. Bigger machines often have bigger buckets and can obviously lift heavier stuff.**

**Skid steers with tracks are often called compact track loaders. Tracked machines are gentler on lawns and less likely to get stuck, but they will cost about 25 percent more to rent.**

**You use levers to steer a skid steer, and either hand joysticks or foot pedals to control the bucket and lift arm. You'll find pros that prefer one over the other, but the learning curve on both is similar. Go with the hand controls if you're still bothered by that old high school knee injury, or do the opposite if you have a gimpy wrist.**

**Skid steers are available at some rental centers, and most heavy-equipment dealers rent them as well.**

## Tight turns wreck the grass

Skid steers turn when the set of tires on one side spin at a different speed than the ones on the other side. This causes a "skid," which wreaks havoc on the ground. Make long, wide turns to reduce the damage to lawns, driveways or any ground surface you don't want to destroy. Smaller machines with rubber tracks will do less damage, but they'll still rip up the turf if you sit in one spot and spin in a circle. Also, wet soil is more susceptible to ruts, so if possible, carry out your project when the ground is relatively dry.

# Top Ten TIPS

BY JEFF GORTON editors@thefamilyhandyman.com

ART DIRECTION **MARCIA ROEPKE** • PHOTOGRAPHY **TOM FENENGA**

# Smart watering

**Proper watering is the single most important thing you can do to keep your lawn in tip-top shape. And even though lawn watering is pretty simple, there are tricks and tips that can help you save time and money. Here are 10 of our best tips for watering quickly and efficiently to maintain a strong lawn.**

## 1 Water in the fall

Your lawn still needs water in autumn, even though the leaves are changing, the growing season is winding down and your grass isn't growing fast. Fall watering helps your lawn recover from summer stress and gain strength for the winter ahead. Also, if you fertilize in the fall, watering is necessary for the fertilizer to dissolve and soak into the ground where it's needed. So don't put your hoses or sprinklers away until the ground starts to freeze.

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## 2 Buy an impact sprinkler on a tripod

**Impact sprinklers are even more versatile if you buy one that's attached to a tripod. These are great for large areas because the extra height increases the distance the sprinkler will throw water. There are other benefits too. You can easily adjust the spray pattern with less stooping, and you can direct the spray over the top of bushes and flower gardens. And finally, the adjustable legs allow you to level out the sprinkler on uneven ground. You can buy tripod impact sprinklers at home centers and garden centers for about $40.**

## 3 Water grass seed carefully

Seeding is a great way to grow a lawn or patch a bare spot. The key to success is proper watering. For seeds to germinate and grow, they must be kept constantly damp until the seedlings establish roots. Once the seeds sprout, a dry period of even a day will likely kill the new sprouts, and you'll have to start over.

Seeds covered with fabric or mulch or mixed with a mulch-like product stand a better chance. But even with this protection, you should water lightly at least once or twice a day during hot or windy days. Sprinkle the seeds with a light mist until they sprout. A hard spray or big droplets of water will wash the seeds away or make them clump together. After the seeds sprout, keep watering once a day until the grass is ready for its first mowing.

## 4 Using well water? Run all your sprinklers at once

Constant starting and stopping will prematurely wear out your well pump. If you're using a well to provide water for your lawn, try to connect as many sprinklers as possible to maximize water flow. This will keep the well pump running continuously and increase its life span.

## 5 Choose the best sprinkler

Impact sprinklers are a great all-around choice because they're so adjustable and generally waste less water. But there may be better sprinklers for small, difficult-to-water areas.

If you have just a small circular area to water, the round watering pattern of a rotary sprinkler is perfect. Long, narrow spaces like boulevards are easiest to water with flat soaker/sprinkler hoses.

For square or rectangular areas, it's hard to beat an oscillating sprinkler. It's not the most efficient design, but the spray pattern makes it easy to water all the way into the corners.

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## 6 Check soil moisture to determine watering time

Common wisdom for establishing the correct length of time to water is to place a pie pan in the yard and note how long it takes to fill 1/2 in. deep. But the expert we talked to prefers a more accurate method that takes soil conditions into account. Heavier soil doesn't absorb moisture nearly as fast as loose or sandy soil, so it needs to be watered longer.

After an extended warm, dry period (dry soil is the key) set up your sprinkler and set a timer for 30 minutes. Then turn off the water and check the soil for moisture depth. Do this by pushing a shovel into the lawn and tipping it forward to expose the soil. See how deep the water has penetrated. Moist soil will be darker. Your goal is to run the sprinkler until the water penetrates 3 to 4 in. into the soil.

If the water has not penetrated far enough, restart the watering and continue to keep track of the time. Check again in another 15 minutes. With trial and error, you'll eventually arrive at the optimal length of time to water for your soil type and water pressure.

## 7 Add a remote hose connection for easier watering

If you're constantly dragging long lengths of hose from the house to the far corners of your yard, consider adding a remote faucet instead. Depending on how much time and expense you want to put into it, this can be as simple as a length of garden hose connected to a fence with pipe straps (photo above), or an underground pipe complete with a vacuum breaker at the house. (Go to familyhandyman.com and search for "outdoor faucet" to see how.) Either way, you'll save a ton of time and effort by not having to deal with long hoses.

## 8 Install an inexpensive irrigation system

Get the convenience of an underground irrigation system at a fraction of the cost with a multi-outlet programmable water timer. You can buy a single-zone timer for as little as $24 or a four-zone timer for about $50.

Programmable timers allow you to choose the time of day and duration that the connected sprinkler will run. Read product descriptions and online reviews carefully to determine which timer is right for your situation, since different models have different functions and abilities.

## 9 More watering wisdom

■ Adjust your watering to the conditions. Different areas of your lawn will have different watering requirements. The key is to make note of this as you water so you can tailor your watering. For example, south-facing hills may require more water; areas under trees, less.

■ Keep watering in a drought. Don't believe the common wisdom that grass goes dormant in a drought. If you don't provide your grass some moisture in a drought, it will die.

■ Water in the morning if possible. The grass can benefit from the water all day long. Plus, watering in the evening may encourage the growth of harmful fungi.

## 10 Save water with an impact or rotary sprinkler

Sprinklers that spray water high into the air or break up water into a mist are very inefficient, especially if you're watering when it's hot and dry. A large percentage of the water will simply evaporate before it ever reaches the grass. Impact and rotary sprinklers, on the other hand, can be adjusted to keep the water nearer the ground; the water comes out in streams or large drops that fall quickly to the ground without evaporating. You'll save water and money using an impact or rotary sprinkler whenever possible.

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## 72" x 80" MOVER'S BLANKET

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## 90 AMP FLUX WIRE WELDER

WE CARRY A FULL LINE OF WELDING WIRE

CHICAGO ELECTRIC WELDING

SAVE OVER $52

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## 24" CLAMP AND CUT EDGE GUIDE

PITTSBURGH

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SAVE 53%

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## 2500 LB. ELECTRIC WINCH WITH WIRELESS REMOTE CONTROL

BADLAND

NEW

$49.99

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SAVE $100

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SUPER COUPON!

- 1000 lb. Capacity

## MOVER'S DOLLY

HaulMaster

LOT 60497
93888 shown
61899/62399

SAVE 40%

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PACIFIC HYDROSTAR

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LOT 69488

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SAVE $70

## 2.5 HP, 21 GALLON 125 PSI VERTICAL AIR COMPRESSOR

CENTRALPNEUMATIC

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61454/61693

$149.99

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PITTSBURGH

## RAPID PUMP® 3 TON HEAVY DUTY STEEL FLOOR JACK

- Weighs 74 lbs.

SAVE $85

$74.99

REG. PRICE $159.99

LOT 68048 shown
69227/62116
62590/62584

33006182

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## 4-1/2" ANGLE GRINDER

drillmaster

SAVE 50%

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SAVE 50%

## MECHANIC'S SHOP TOWELS PACK OF 50

LOT 46163 shown
61878/69649
61837

HFT

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## 16 OZ. HAMMERS WITH FIBERGLASS HANDLE

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| CLAW | RIP |
|---|---|
| LOT 47872 shown<br>69006/60715/60714 | LOT 47873<br>69005/61262 |

SAVE 62%

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$2.99

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CENTRAL MACHINERY

## 8", 5 SPEED BENCH MOUNT DRILL PRESS

LOT 62520/62390/60238 shown

$49.99

SAVE $50

~~$69.99~~ REG. PRICE $99.99

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SUPER COUPON!

## 50 FT. ELECTRIC DRAIN CLEANER

HYDROSTAR

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68285 shown

SAVE $200

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## 16" x 30" TWO SHELF STEEL SERVICE CART

- 220 lb. Capacity

US★GENERAL

LOT 60390/5107 shown

SAVE 57%

$29.99

REG. PRICE $69.99

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SUPER COUPON!

SAVE 45%

## POWDER-FREE NITRILE GLOVES PACK OF 100

HARDY

- 5 mil. thickness

YOUR CHOICE!

$6.49

REG. PRICE $11.99

MEDIUM
LOT
68496/61363

LARGE
LOT
68497/61360

X-LARGE
LOT 61359
68498 shown

33084983

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Customer Rating ★★★★★

AWARD WINNING QUALITY

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### 26", 16 DRAWER ROLLER CABINET

LOT 61609/67831 shown

- 1060 lb. Capacity
- 14,600 cu. in. of storage

SAVE OVER $332

$317.83 ~~$369.99~~ REG. PRICE $649.99

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### 3-1/2" SUPER BRIGHT NINE LED ALUMINUM FLASHLIGHT

LOT 69052 shown
69111/62522/62573

$6.99 VALUE

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33164272

## SUPER COUPON!

### RECIPROCATING SAW WITH ROTATING HANDLE

CHICAGO ELECTRIC POWER TOOLS

SAVE 60%

$21.99 REG. PRICE $54.99

LOT 61884/62370/65570 shown

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## SUPER COUPON!

### 2 HP INDUSTRIAL 5 MICRON DUST COLLECTOR

- 70 Gallon Capacity

LOT 61790
97869 shown

SAVE $90

$159.99 REG. PRICE $249.99

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### TORQUE WRENCHES

PITTSBURGH PRO

1/4" DRIVE
LOT 2696/61277

3/8" DRIVE
LOT 807/61276

1/2" DRIVE
LOT 62431
239 shown

SAVE 66%

YOUR CHOICE!
$9.99
~~$21.99~~ REG. PRICE $29.99

- Accuracy within ±4%

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## WOW SUPER COUPON

### 12" SLIDING COMPOUND DOUBLE-BEVEL MITER SAW WITH LASER GUIDE

NEW

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LOT 69684 shown
61776/61969/61970

SAVE $165

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## WOW SUPER COUPON

### 2-IN-1 FLOORING AIR NAILER/STAPLER

CENTRALPNEUMATIC

LOT 97586
69703/61689 shown

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## SUPER COUPON!

### 4 PIECE WOOD CHISEL SET

1" 3/4" 1/2" 1/4" PITTSBURGH

LOT 69471
42429 shown

SAVE 66%

$4.99 REG. PRICE $14.99

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## SUPER COUPON!

NEW

### 900 PEAK/ 700 RUNNING WATTS 2 HP (63 CC) 2 CYCLE GAS RECREATIONAL GENERATOR

LOT 60338/62472
66619/69381 shown

SAVE $80

$99.99 REG. PRICE $179.99

33144597

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## SUPER COUPON!

### 1/4" TRIM ROUTER

drillmaster

LOT 61626
44914 shown

$19.99 REG. PRICE $34.99

SAVE 42%

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## SUPER COUPON!

### 60", 4 DRAWER HARDWOOD WORKBENCH

LOT 62603/69054/93454 shown

SAVE $110

$139.99 REG. PRICE $249.99

WINDSOR DESIGN

33148806

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## SUPER COUPON!

### 2.4" COLOR LCD DIGITAL INSPECTION CAMERA

CENTECH

LOT 67979 shown
61839/62359

SAVE $80

$69.99 REG. PRICE $149.99

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## SUPER COUPON!

### STEP STOOL/ WORKING PLATFORM

- 350 lb. Capacity

HaulMaster

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$24.99 REG. PRICE $34.99

LOT 62515
66911 shown

33098738

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## SUPER COUPON!

### 14" OSCILLATING SPINDLE SANDER

LOT 95088/62146
69257 shown

SAVE $50

$99.99 ~~$139.99~~ REG. PRICE $149.99

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## SUPER COUPON!

SAVE $150

### 6.5 HP (212 CC) OHV HORIZONTAL SHAFT GAS ENGINES

PREDATOR ENGINES

LOT 60363
69730/68120

LOT 69727 shown
CALIFORNIA ONLY

$99.99 REG. PRICE $249.99

33143098

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## SUPER COUPON!

### 4 PIECE 1" x 15 FT. RATCHETING TIE DOWNS

LOT 60405/61524/62322/90984 shown

HaulMaster

$7.99 REG. PRICE $19.99

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# DIY Quiz

BY MARK PETERSEN editors@thefamilyhandyman.com

**Put on your thinking cap and take this month's quiz to see just how smart you are when it comes to DIY. Here's how it works:**

- There are easy, intermediate and really tough questions all mixed together.
- There may be more than one correct answer!
- Find the answers and get your DIY rating on pp. 74–75. Good luck!

GETTY

**1. What is the proper pH range for a healthy lawn?**
**A.** 4 to 5.8
**B.** 5 to 6.2
**C.** 6 to 7.2
**D.** 7 to 8.8

**2. What is the No. 1 cause of poisoning deaths in the United States?**
**A.** Carbon monoxide
**B.** Pest control products
**C.** Food poisoning
**D.** Lead paint

**3. What does LVT stand for?**
**A.** Linear voltage transformer
**B.** Long valve turn
**C.** Luxury vinyl tile
**D.** Lower vacuum tube

**4. When you're finishing a basement, which is an acceptable way to conceal the service panel?**
**A.** Place behind the mirror in the new bathroom.
**B.** Build a clothes closet around it.
**C.** Hang a painting over it.
**D.** None of these are allowed.

**5. What is this tool used for?**
**A.** Fastening hex nuts
**B.** Making wood plugs
**C.** Boring holes in plastic
**D.** Installing eye hooks

**6. True or False? The rear tires on a car wear faster than the front tires.**

**7. What purpose does the thermocouple in your water heater serve?**
**A.** It lights the flame with an electronic spark.
**B.** It senses and controls the temperature of the water.
**C.** It detects whether the pilot light is on or off.
**D.** My electric water heater doesn't have one.

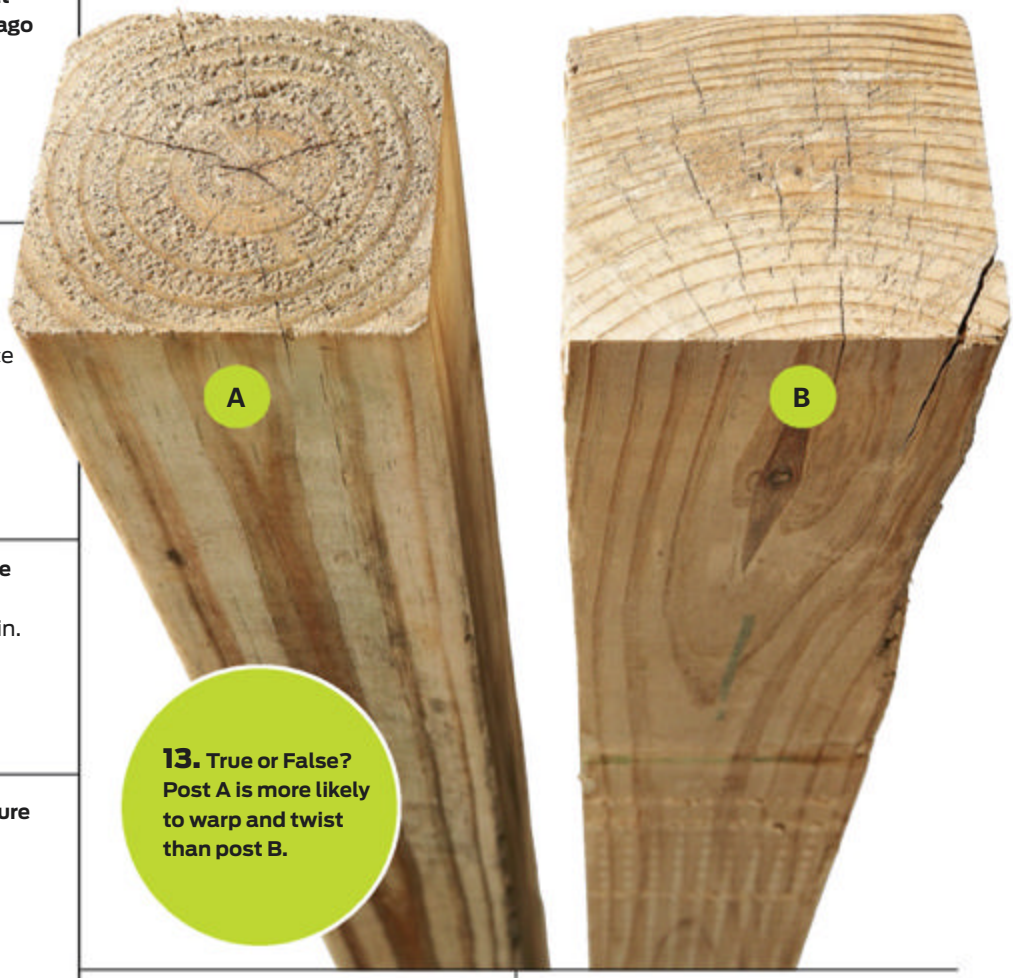
**8. Where would you find these in your house?**
**A.** Above a ceiling fan
**B.** On rectangular ducts
**C.** On the end of a round duct
**D.** Behind wall bricks

**9. Which type of insulation that was used more than 100 years ago is still used today?**
**A.** Fiberglass
**B.** Asbestos
**C.** Recycled newspaper
**D.** Closed-cell polyurethane

**10. What causes spalling (holes or flaking) on concrete surfaces?**
**A.** Water freezing on the surface
**B.** Tooling the concrete too much when it's poured
**C.** Pouring too wet a mixture
**D.** All of the above

**11. When should you remove the fence on a table saw?**
**A.** Cutting wood thicker than 1 in.
**B.** Crosscutting
**C.** Cutting with a dado blade
**D.** Cutting plywood

**12. Which is the best temperature to set your water heater?**
**A.** 100 degrees F
**B.** 120 degrees F
**C.** 140 degrees F
**D.** 160 degrees F




**13. True or False? Post A is more likely to warp and twist than post B.**

**14. Which is a good option to control weeds in a plant bed?**
**A.** Landscape fabric
**B.** Thick black plastic
**C.** Vinegar
**D.** Mulch

**15. True or False? When hanging kitchen cabinets, it's better to hang the upper cabinets before the base.**

**Find the DIY Quiz answers on pp. 74–75.**

# DIY Quiz Answers

**1.** (**C**) If the soil is too acidic or too alkaline, the grass won't thrive even if you do everything else right. You're after a pH between 6 and 7.2. If it's too high, you'll treat the lawn with iron sulfate or sulfur; too low and you'll use pelletized limestone. Store-bought testers will give you a rough pH estimate, but professional testing services are much more dependable.

**2.** (**A**) The Centers for Disease Control reports that at least 430 people die each year in the U.S. from unintentional, non-fire-related CO poisoning. Common producers of carbon monoxide are generators, fireplaces, automobile engines, charcoal grills, propane/kerosene heaters and gas water heaters and furnaces. CO detectors should be placed outside each sleeping area and on each level of the home. For more information, visit emergency.cdc.gov/disasters/cofacts.asp.

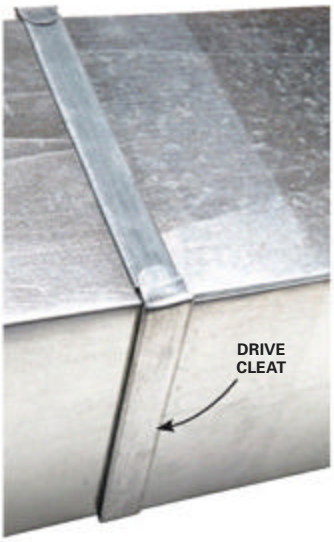
**3.** (**C**) Luxury vinyl tile has been installed in commercial buildings for many years but has recently been showing up in more and more homes. LVT looks like tile and is water resistant like tile, but it's made of flexible, sturdy vinyl that feels softer underfoot. Some products can even be grouted. Depending on the brand, LVT can be glued down or floated and is much easier to work with than real tile.

**4.** (**C**) You are allowed to hang a painting over a service panel, but service panels are not allowed in bathrooms or clothes closets, and don't install pipes or ducts in front of them. Here's a good rule of thumb: If you can't park a large refrigerator in front of the panel, you don't have enough room. These clearances are designed to protect the person working on the panel—it's difficult to work safely when your arms are pinned to your sides.

**5.** (**D**) If you have a lot of eye hooks to install, you gotta get one of these wing nut/eye hook drivers. Suspended-ceiling installers use them all the time. This one is made by Ryobi and costs $7.

**6. False.** In addition to steering, front tires handle most of the braking, which makes them wear faster. Rotating your tires every 5,000 to 8,000 miles will ensure even wear, which translates to longevity and better traction.

**7.** (**C** & **D**) The thermocouple in your gas water heater can sense if the pilot goes out and can shut down the gas flow if it does. That's important because your house would otherwise fill up with gas. Generally, a bad thermocouple is the problem when a pilot light won't stay lit.




**8.** (**B**) Drive cleats are used in conjunction with S-cleats to connect two rectangular ducts. Sealing leaky joints in ducts with foil tape is a cheap and easy DIY project that can reduce your energy costs.

**9.** (**C**) A hundred years ago, it was a common practice to insulate wall cavities with crumpled newspapers because they were cheap and readily available. Today, cellulose insulation is still a popular option for attics, and cellulose is often made from recycled newspaper.

**10.** (**D**) In the winter, water can soak into the concrete, freeze, expand, and cause flaking on the surface. But spalling can occur in any climate if too much water is added to the mix, or if water is sprinkled on the surface of the concrete to extend finishing time. Excess water weakens concrete and makes it susceptible to spalling.

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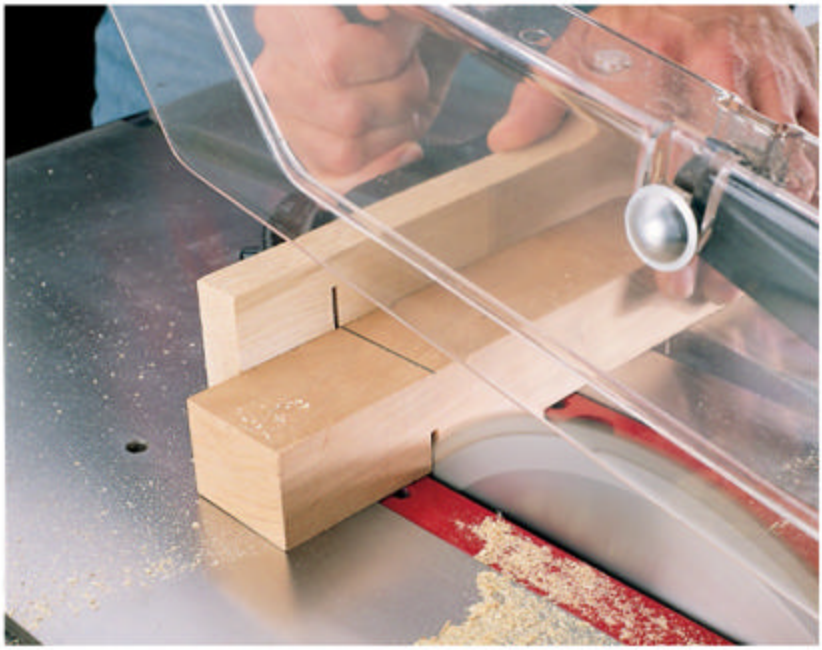


**11.** (**B**) Dangerous kickback can occur when you crosscut directly against a rip fence. Kickback happens when the part of the board between the fence and the blade gets pinched, and the blade, spinning toward you, catches it and hurls it back at you.

**12.** (**B**) If you set the temperature too low, your water heater will become a petri dish for growing dangerous bacteria; too high and you waste energy and run the risk of scalding your housemates. Experts recommend setting your water heater at 120 degrees F.

**13. True.** Some pressure-treated 4x4s are made from "peeler cores," which are the byproduct of plywood production. When a log is turned on a lathe to produce 8-ft. plywood veneer, the center that remains is used as an 8-ft. post.

These cores often don't accept pressure treatment well. Peeler-core posts are more likely to warp and twist than posts cut farther away from a tree's center. If it's important for a post to be straight, buy 10-ft. posts instead of 8-footers, and trim them to fit.

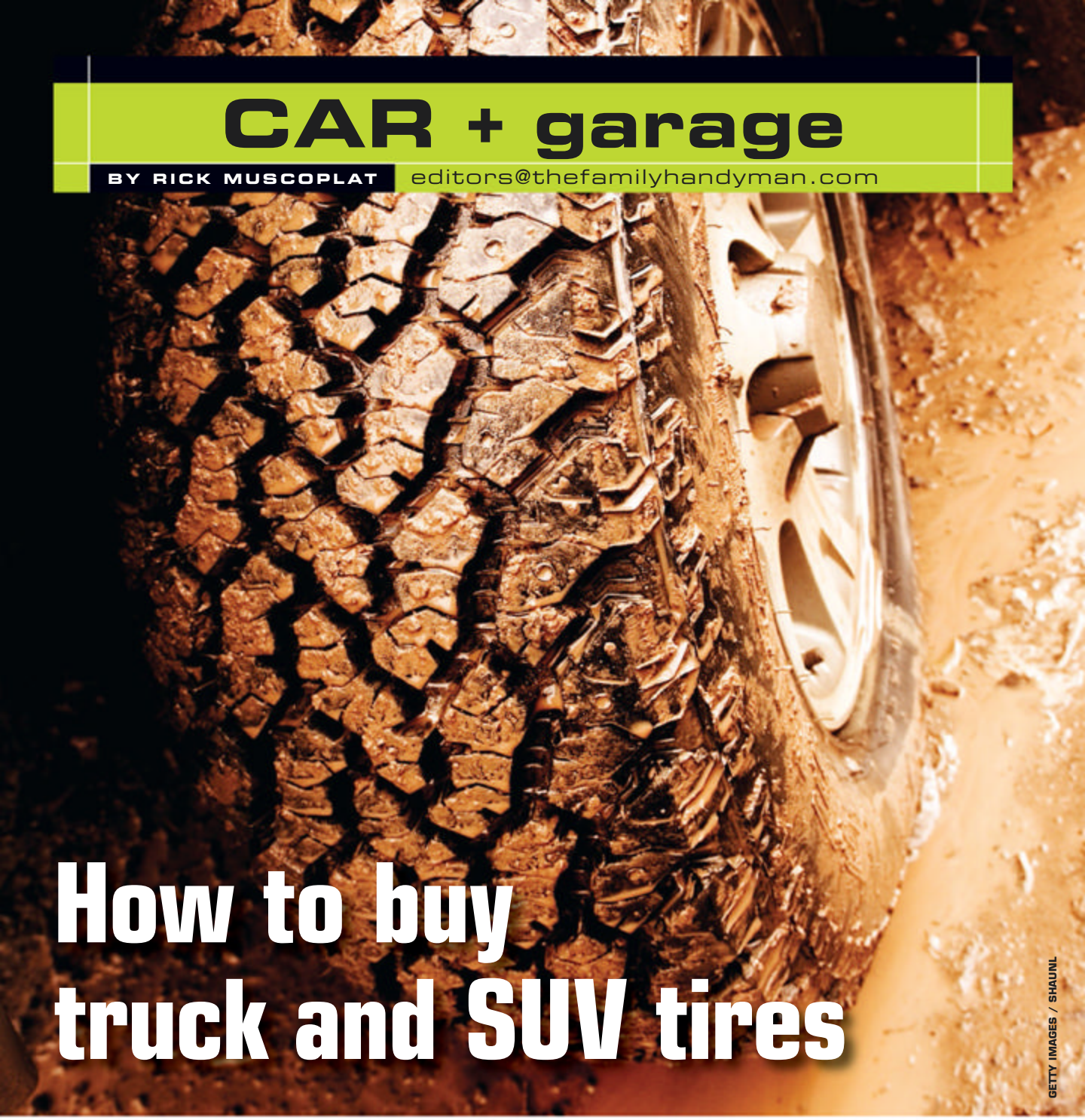
**14.** (**A** & **D**) Several inches of mulch will help control weeds. It will also decompose and add organic matter to the soil. However, you'll have to add more every couple of years. Landscape fabric is another good option, but make sure to buy the good stuff. Hold the fabric up to the light and make sure the pores in the fabric are small enough to prevent weeds from growing through the barrier. It should feel stiff, not flimsy and limp. Plastic is not a good choice because it keeps water from reaching thirsty plants.

**15. True.** It's better to hang the upper cabinets before the base because leaning over base cabinets to hang the uppers is a back-breaker. And it's much easier to hang the upper cabinets without the base cabinets in your way. But it's important to mark the exact location of the base cabinets so the uppers line up.

## WHAT'S YOUR LEVEL OF EXPERTISE?

**Beginner: 0 – 5 correct**
**Intermediate: 6 – 12 correct**
**DIY Guru: 13 – 15 correct**

BY RICK MUSCOPLAT editors@thefamilyhandyman.com



# How to buy truck and SUV tires

GETTY IMAGES / SHAUNL

Replacement light truck (LT) tires are expensive, so it pays to shop several tire stores and online sellers for a good deal. If you're not sure whether your vehicle has LT tires, just look for "LT" in the size mark on the tire. "LT" on the decal located in the driver's door area or in the glove box will tell you whether it should have them.

In some cases, you can save money and even improve the ride quality by switching from an LT-rated tire to a passenger (P-Metric) tire. But don't make that decision on your own—you need a tire expert to help you buy a replacement tire with the right size and load rating.

We contacted several tire experts to learn when it's OK to deviate from the vehicle manufacturers' LT tire recommendations. We also picked up the best tire-buying tips for truck and SUV owners and learned about the latest innovations in tread design and rubber composition. If you're in the market for truck or SUV tires, this story is a must-read before you walk in the door of a local shop or begin searching online.

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## Buy tires for the harshest conditions

Before you walk into a tire shop or visit an online store, think about the heaviest loads and worst road conditions your tires will encounter over their expected life. The tires' load rating should match your heaviest anticipated load, not your average load. Plus, the tread design should be matched to the worst roads you might drive on. If they're muddy, snow covered, gravel or sand, you need a more aggressive tread and a rubber compound that provides more traction and is more resistant to gouging.

If you're unsure about the minimum tire load rating or payload or passenger limits for your vehicle, check the tire sticker on the driver's door pillar (or in the glove box for vehicles made before 2006). Then present your expected load and road condition factors to the tire salesperson before talk about size or price.

## What you get when you pay more

Some truck and SUV tires cost substantially more than others, and it's reasonable to wonder what you get for the extra dough. The answer is—plenty! Premium tires are made with better and more expensive raw materials to improve traction, prolong tread life, increase durability and provide better handling and a smoother ride. Their tougher sidewalls prevent sidewall damage when driving over curbs and rocks.

Some premium designs include raised stone ejectors to prevent stones from embedding in the tire and causing flats. Other features include raised bars to eject mud, interlocking tread blocks to increase traction on dry pavement, serrated shoulders to enhance maneuverability in sand and snow, and three-dimensional sipes to provide more biting edges to increase traction in snow.

## Avoid the trendy looks if you don't need them

The "off-road" look is the hottest trend in truck tires these days. They look tough, with beefy, aggressive and exaggerated tread blocks. But despite their cool appearance, they most likely will have poor "road manners," meaning they provide a stiff ride, poor comfort and equally poor handling. And they're very noisy at highway speeds.

The next hottest trend is retrofitting trucks and SUVs with extra-large wheels and low-profile tires (less sidewall distance between the wheel and the tread). Like off-road tires, this combination provides a very harsh ride. Plus, the larger wheels decrease braking ability, slow acceleration, cause faster suspension wear and can decrease overall stability. And, since there's less rubber between the tread and the wheel, the wheels experience more damage when they hit potholes.

## KNOW WHEN TO BUY NEW TIRES

Any tire expert will tell you your truck or SUV tires need replacing once the wear bars are level with the tread. At that point, the tread is at the legal limit of 1/16 in. deep. But your tires' traction and stopping ability decrease dramatically long before that point.

Tests conducted by Tirerack.com and one other consumer testing organization prove that trying to squeeze the last bit of life out of your tires simply isn't worth it. Their stopping tests show that tires with a 1/8-in. tread depth (twice the legal limit) take 125 ft. more to stop on wet pavement than new tires. If you think that's shocking, ponder this: The tires with 1/16-in. tread took 250 ft. more than new tires. The truck with the 1/16-in. tread was still traveling at 45 mph after the truck with 1/8-in. tread had come to a complete stop. (Check out the video at tirerack.com/panicstopping.)

So even if your tire's tread is above the wear bars, that doesn't mean it's safe. And regardless of the amount of remaining tread, you must replace your tires as soon as you detect cracks in the tread or sidewall areas.

**MEASURE YOUR TREAD WITH A GAUGE**
Wipe road dirt off a section of tread. Then plunge the depth gauge into the tread at each edge and in the middle. The lowest reading is the measurement that determines tread depth.

## Should you buy the extras?

Some tire shops sell lifetime rotation and balancing packages and an additional road hazard warranty. Buying both packages can add nearly $40 to the cost of each tire. But regular tire rotation and rebalancing are critical to squeezing the most life out of your tires. So we think it's worth the money.

The decision to buy road hazard insurance depends on how and where you drive your truck. It really comes into play when you get tire punctures or damage outside the legal repair areas—for example, in the tire shoulder or sidewall. It's not legal for repair shops to repair that type of damage, so you're forced to buy a new tire.

Consider buying this insurance if you drive in construction zones, over curbs and rocks, or if you regularly drive on bad roads or often encounter deep potholes. That's when road hazard insurance makes the most sense.

## Making the switch to passenger tires

Switching from truck to passenger tires can save you money, but probably not as much as you think. That's because you can't just install passenger tires that are the same size and load rating as your present truck tires. The load ratings for passenger tires apply only when they're installed on a passenger car. Trucks and SUVs have a higher center of gravity and place different stresses on tires, so you have to reduce a passenger tire's load rating by 9 percent. In other words, you have to buy a heavier-duty passenger tire, which usually requires moving up to a larger tire. Upsizing wipes out some of the savings you thought you could achieve by switching to passenger tires.

But switching does provide at least one benefit—better ride quality. Passenger tires are smoother and quieter at highway speeds. If you use your truck or SUV more like a family car than a hauling vehicle and you drive it on paved roads, check out passenger tires. But rely on a tire pro to find the right tire for your vehicle.

## TIRE PRESSURE FACTS

- **Tire pressure sensors usually set off the low-pressure light when the tire pressure falls by 25 percent. By then you've already started premature tire wear because of low inflation pressure.**
- **Tires generate excess heat when they're underinflated, and excess heat increases the risk of tire damage, especially in Sun Belt states during summer months.**
- **Recent studies show that the tire pressure gauges at nearly 20 percent of all service stations overreport tire pressure on a 35-psi tire by at least 4 psi.**
- **Less than half of all gas stations that provide compressed air hoses also include a pressure gauge.**
- **The metal caps on tire pressure sensors are part of the antenna system and should never be replaced with plastic caps.**
- **Tire shops are reporting an increase in the number of tire pressure sensor valve stems that break during inflation due to internal corrosion. Apparently the sensor manufacturers didn't consider the long-term effects of using dissimilar metals in the valve stem construction.**

## Buying new tires? Rebuild or replace your TPMS sensors

Starting in September 2007, all carmakers were required to install a tire pressure monitoring system (TPMS) that warns you when tire pressure falls to 75 percent of the recommended pressure. The TPMS sensors are either part of the valve stem assembly or strapped around the rim inside the tire.

To avoid damaging the valve stem sensor when changing tires, many shops remove the sensor. If the sensor is out, it pays to rebuild it with a new seal and torque nut. Shops charge $10 each to rebuild the sensor, and we think it's a worthwhile service. However, the batteries in tire pressure sensors have only a seven to 10-year life. If the TPMS sensors in your vehicle are approaching the end of their battery life, you may want to skip the rebuild and have the shop install new sensors for about $40 each (the batteries can't be replaced).

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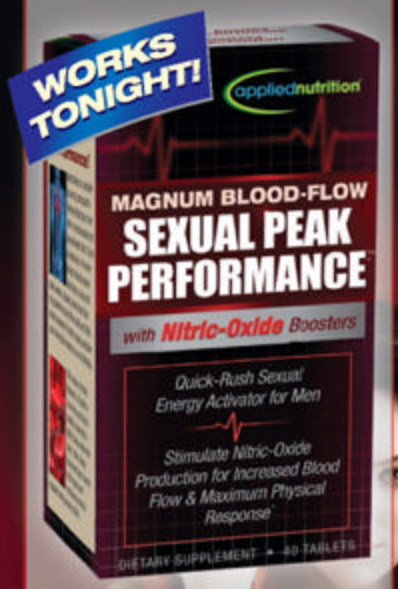


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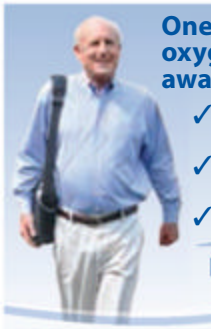

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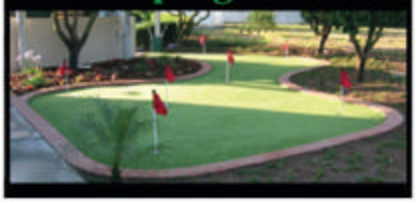

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***"I tried my sister's cell phone… I couldn't hear it."*** Jitterbug is designed with an improved speaker. There's an adjustable volume control, and Jitterbug is hearing-aid compatible.

***"I don't need stock quotes, Internet sites or games on my phone, I just want to talk with my family and friends."*** Life is complicated enough… Jitterbug is simple.

***"What if I don't remember a number?"*** Friendly, helpful Jitterbug operators are available 24 hours a day and will even greet you by name when you call.

***"I'd like a cell phone to use in an emergency, but I don't want a high monthly bill."*** Jitterbug has a plan to fit your needs… and your budget.

***"My cell phone company wants to lock me in on a two-year contract!"*** Not Jitterbug, there's no contract to sign and no penalty if you discontinue your service.

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|---|---|---|
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| 911 Access | FREE | FREE |
| Long Distance Calls | No add'l charge | No add'l charge |
| Voice Dial | FREE | FREE |
| Nationwide Coverage | YES | YES |
| Friendly Return Policy[1] | 30 days | 30 days |

More minute plans available. Ask your Jitterbug expert for details.

***"I'll be paying for minutes I'll never use!"*** Not with Jitterbug, unused minutes carry over to the next month, there's no roaming fee and no additional charge for long distance.

***"My phone's battery only lasts a couple of days."*** The Jitterbug's battery lasts for up to 25 days on standby.

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BY RICK MUSCOPLAT editors@thefamilyhandyman.com

ART DIRECTION MARCIA ROEPKE • PHOTOGRAPHY TOM FENENGA

# Replace a sprinkler head

It's pretty easy to damage a sprinkler head with your mower if the head sits too high. And we're convinced that snowplow operators intentionally shear off sprinkler heads along the curb just for the entertainment value.

No matter how your sprinkler head got damaged or quit working, there's no need to call the irrigation company to do the repairs. This is a DIY job from start to finish. All you need is a new head, an assortment of different-length poly cutoff riser fittings and parts to build a homemade flushing tool. You can get all the parts for less than $15 at any home center. You'll also need a garden spade, poly sheeting, a wet/dry shop vacuum and a saw. Here's how to attack the job.

## How to buy replacement sprinkler heads

A replacement sprinkler head doesn't have to be the same brand as the broken head. But it does have to be the same type: pop-up (stationary, rotor- or gear-driven rotor) or impact. And the new head must also match the inches-per-hour (iph) or gallons-per-minute (gpm) delivery rate of the old head. Plus, the spray pattern and throwing distance must also match. If you install the wrong head, it can over- or underwater that section of your lawn or garden and possibly cause other heads in that same zone to underperform. So you'll need all the specs from the broken head before you buy a replacement.

Locate that information on the nozzle, the top of the head (if it's still there) or on a label stuck to the body of the head (see "Remove the Broken Head" at right). If you can't find the specifications, at least find the brand and part number. Then look up the specs on the manufacturer's website. If you strike out on the specs and part number, take the old head to an irrigation service company and ask for a matching replacement head.

Buy a replacement head at a home center or online (sprinklerwarehouse.com is one source). The replacement head will most likely come with an assortment of snap-in nozzles, so you can adapt the head's delivery rate, spray pattern and throw rate to fit your needs.

## Remove the broken head

Lay down plastic sheeting next to the broken sprinkler head. Then use a garden spade to cut an 8-in. circle around the old head. Pry out the sod and set it aside. Then dig down and around the old head, placing the dirt on the poly sheet (**Photo 1**). When you reach the water line, unscrew the broken head.

If the head is located at the low spot of a watering zone, chances are the hole will fill with water, and mud will get into the water line. Suck the mud

out with your shop vacuum. (The water line gets flushed later.)

## Set the new head height

If the old riser fitting came out with the old head, remove it and screw it onto the new head. Then test-fit the new head by screwing it into the water line. The top of the head should be flush with the ground, not sticking up into the grass. If it's not the right height, grab a new poly cutoff riser (about $1 each at home centers) with multiple threaded sections and cut it to the correct length (**Photo 2**). It may take a few tries (and a few risers) to get the height just right. Once you get the proper height, remove the head and flush the line using the steps shown here.

## Build a flushing tool and flush the water line

No matter how careful you are, dirt is going to fall into the water line fitting. If you can't remove all the dirt with your shop vacuum, you'll have to flush it. Build a flushing tool with 3/4-in. PVC pipe and the fittings (about $5 in parts at home centers) shown in **Figure A**. Then flush the water line (**Photo 3**). Finish by sucking the water out of the flushing tool (**Photo 4**).

## Install the head and backfill

Screw the new head into the flushed water line and begin backfilling the hole. Align the head so it sits straight in the hole as you tamp the dirt with your hand. Finish the job by replacing the grass. Water immediately to reestablish the grass roots.

**1 SCOOP OUT THE DIRT**
Slice the garden spade straight down the sides of the hole to give you room to maneuver. Then lift the dirt up, out and onto the poly sheeting.

**2 CUT THE RISER TO LENGTH**
Slice through the multiple-thread poly cutoff riser using a metal-cutting blade for a smooth cut. Deburr the cut edge with a knife. Then install the riser on the head, screw the head into the water line and check the height.

**3 FLUSH THE LINE**
Screw the flushing tool into the water line and aim it into the street or away from your work area. Turn on the water for that zone and let it run for about 30 seconds.

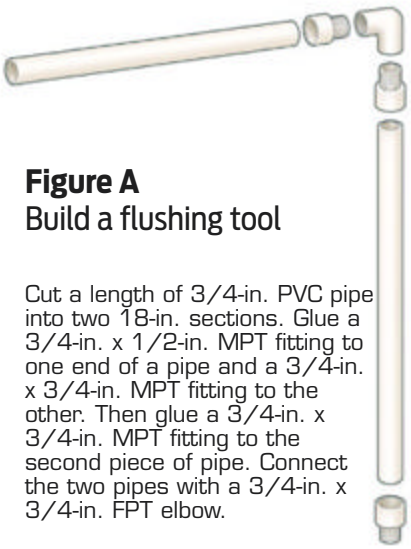

**Figure A**
Build a flushing tool

Cut a length of 3/4-in. PVC pipe into two 18-in. sections. Glue a 3/4-in. x 1/2-in. MPT fitting to one end of a pipe and a 3/4-in. x 3/4-in. MPT fitting to the other. Then glue a 3/4-in. x 3/4-in. MPT fitting to the second piece of pipe. Connect the two pipes with a 3/4-in. x 3/4-in. FPT elbow.

**4 VACUUM OUT THE REMAINING WATER**
Slide the vacuum hose nozzle over the vertical pipe and suck out all the remaining water.

**5 INSTALL THE HEAD AND BACKFILL**
Screw the riser fitting into the irrigation tube, then the sprinkler head. Backfill with dirt and sod.

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# Bad News For Survival Food

Something just happened that explains why ***tons and tons*** of survival food are literally flying off warehouse shelves. It's gotten to the point that this food is actually sold out in many parts of the country.

### What the heck is going on?

Wait until you see what we found out. It caught us totally by surprise because it involves ***an agency responsible for aiding Americans in times of crisis.***

Now, it's hard to say precisely what **they** are up to, but we know for sure that they've been trying to find out as much as they can about survival food: how much of it exists, where they can find it, how quickly they can get it.

### We have the proof in writing!

We don't know about you, but any time folks like this start prying into the affairs of private businesses like ours, we can't help but get concerned – and frankly, we are.

The truth is, **this plot** could land us in some serious hot water. There's a reason they're not going public with any details. But they are definitely up to something. And we think you deserve to know exactly what that is.

### Go to GETFOOD74.COM right now.

We just posted a **free video presentation** that exposes the truth. You can view it ***right now*** at **GETFOOD74.COM.** We have to warn you that you'll probably find that what it shows is really disturbing. Because the fact is **these people** must know something we don't know, but we should.

Go to **GETFOOD74.COM** now and you'll also learn what the ***#1 item to hoard*** is. And we will explain why supplies of this critical item are so low or even ***completely sold out*** in many stores across America.

### See this video while you still can.

Watch the controversial video that thousands of smart patriots have already seen in recent days. Go to **GETFOOD74.COM** and discover the #1 item most critical in a crisis. Go watch this important video now at **GETFOOD74.COM** before they force us to shut it down. What you'll learn ***could literally save your family's lives.***

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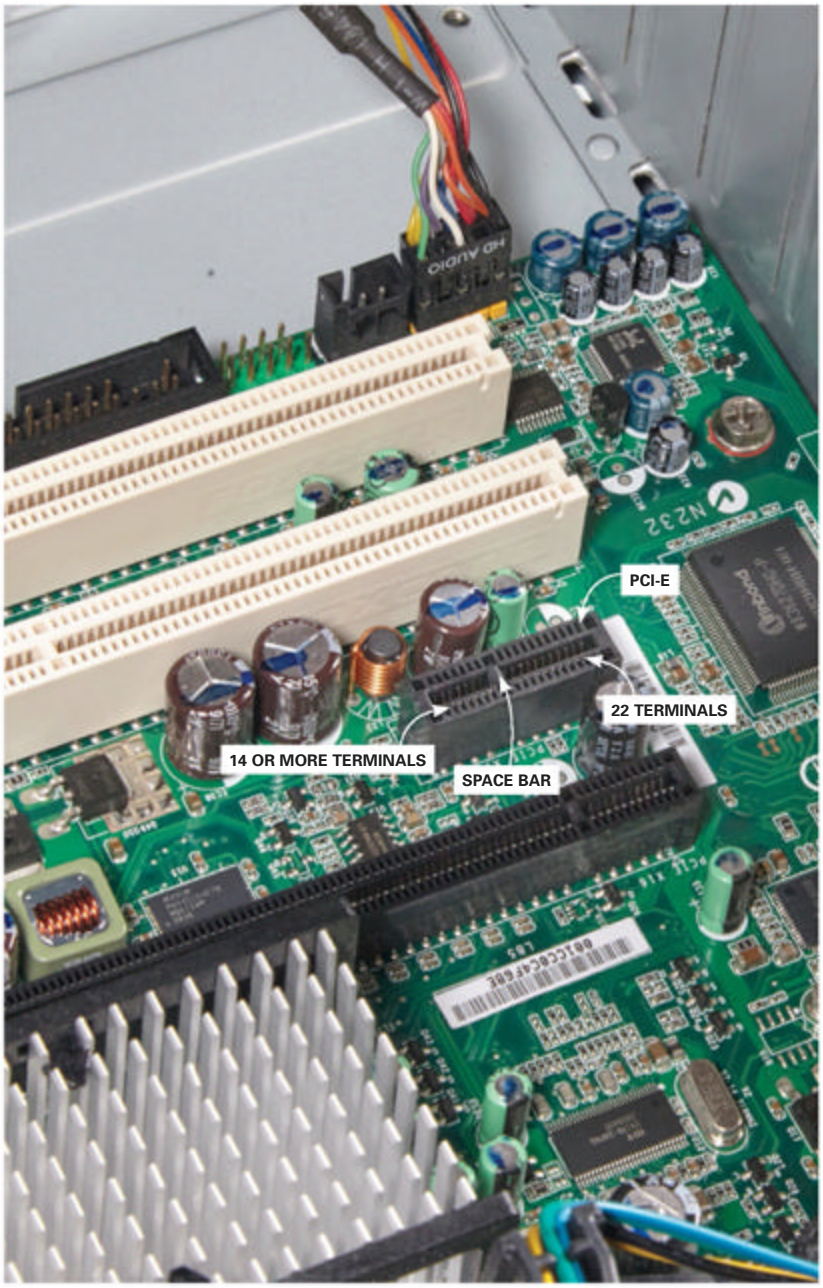
# GET FASTER BACKUPS WITH YOUR DESKTOP COMPUTER

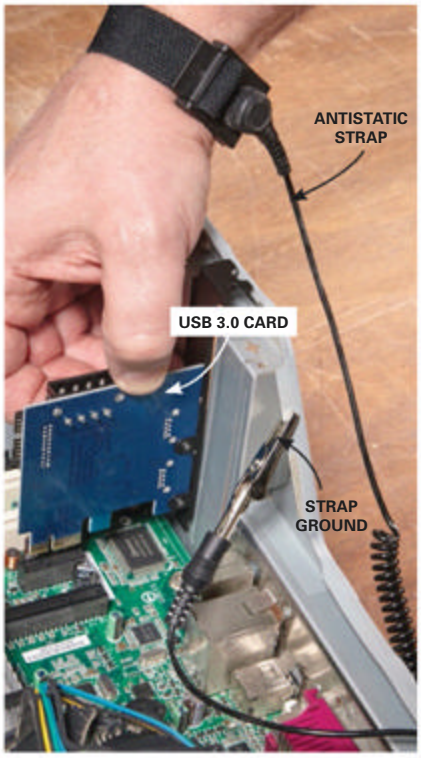
If you buy a new backup hard drive, chances are it'll have an ultra-fast USB 3.0 interface. But if you plug it into your old desktop PC with a USB 2.0 port, it'll run at half speed and your backups will take longer. The good news is you can probably upgrade your desktop to USB 3.0 for about $30. Here's how.

Open the computer and look for an empty PCI-E slot (**Photo 1**). If you find one, buy a USB 3.0 PCI-E peripheral card (one choice is the Anker Uspeed PCI-E to USB 3.0 with 20-pin connector; $19 at amazon.com). If you want to access the high-speed ports from the front of the machine and have an empty drive bay, buy a USB 3.0 front panel (such as the Anker 3.5 inch Front Panel 2 USB 3.0 Ports; $10 at amazon.com).

Install the PCI-E card (**Photo 2**) and the USB front panel (**Photo 3**). Then fire up the computer and install the software drivers that came with the card.




**1 IDENTIFY A PCI-E SLOT**
Find an empty slot and count the number of terminals in front of the spacer bar. If the slot has 22 terminals, a space bar and is followed by at least 14 more terminals, it's a PCI-E slot.




**2 INSTALL THE USB 3.0 CARD**
Connect an anti-static strap between your wrist and the computer chassis. Then remove the metal slot "blank" from the rear of the case. Next, slide the USB 3.0 card into the slot and secure the metal card bracket to the chassis with a screw.

**3 INSTALL THE FRONT PANEL**
Pop out the plastic filler plate from the front of the computer. Then slide in the new panel and secure with screws. Connect the cables to the USB 3.0 card and reinstall the side cover.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FROM OUR READERS greatgoofs@thefamilyhandyman.com

## BUCKLED WALLS

A few winters ago, I decided to finish the basement. On one of the long walls, I installed wainscot strips made from tongue-and-groove pine. I carefully placed each piece exactly plumb along the entire wall, tapping one tightly to the next. It looked great, especially after staining and varnishing.

One day the next summer, I went downstairs and couldn't believe my eyes! The wainscoting boards had buckled and were sticking out several inches in one spot! I called a friend who's a professional contractor and he laughed when I told him what had happened. He informed me that the tongue-and-groove boards installed in the dry winter climate had swelled in the moist summer. With no room to expand, they popped out.

**Mitch Burfeind**

## No way out

I was relocating the shower in a bathroom that was built over a crawl space. To gain access, I cut a hole in the subfloor and slithered down between the joists with all my materials and tools. The floor would be an easy patch since I was retiling anyway. After I spent a few hours down there soldering copper pipes and gluing ABS drain lines, the new plumbing setup was perfect. Then it dawned on me that my beautiful new plumbing job blocked my way out through the opening. Unless I took the whole thing apart, I was trapped! I didn't have the heart to rip it all out, so I used my cell phone to call my son. I cooled my heels down there for an hour until he showed up and cut another hole in the floor to let me out.

**Jim Bianchini**

## Hidden hazard

A few years back, I needed to hire an electrician to wire a new outlet for my wall-mounted TV. The quote I got was pretty steep, so instead, I hired a friend of a friend, who "knew a little about wiring." He completed the job and everything went well for years ... until I decided to remodel the bathroom that shared the wall behind the wiring. Once the drywall was removed, I found out just how little this guy knew about wiring. Instead of installing a new outlet, he had simply connected an outlet strip and drywalled it into the stud space. Thank goodness we found this before the faulty wiring burned down our house. Sometimes you get what you pay for!

**Josh Conley**

EDITOR **DAVID RADTKE** • ART DIRECTION **MARY SCHWENDER** • ILLUSTRATIONS **STEVE BJÖRKMAN**

Got your own DIY mistake? **GET A $100 GIFT CARD FOR YOUR GREAT GOOF!** See p. 2.

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